GAS JOURNAL

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WALES LEADS THE WAY

ON other pages we publish an article of unusual interest on 'The Administrative Staff College,' by Mr. Albert Pickard, who, after only 10 years in Wales, delivered his Chairman's Address to the Wales and Monmouthshire Section of the Institution of Gas Engineers last Friday. Much of what he tells today's *Journal* readers was incorporated in his address—we mention this as anticipatory explanation for the deletion of the references to Henley-on-Thames from our account of the address which is in fact in type in readiness for a later issue. Mr. Pickard gives entirely his own impressions and neither the college authorities nor the Wales Gas Board had any part in preparing or approving the article. The significance of his impressions lies in the fact that he was the first person ever from what may be termed the 'owner side' of the gas industry to go to the Staff College. It so happens that none of the former companies or municipal gas departments had sent any of their senior staff nor, to date, have any of the area boards. Arrangements, we understand, have now been made by the Gas Council on behalf of all the area boards for what is hoped will be regular attendance at courses of selected senior executives of area boards.

Names of senior officers have already been submitted by the North Thames and South Eastern Boards and accepted by the college. The other side of the industry—the appliance manufacturers—have sent men to the college and confirm the value they have found as a result. Those who have been in close touch with the movement are convinced of the great value of the Staff College to the improvement of standards of administration in industry of all kinds, the public and the fighting forces, and its potential value to the gas industry. Mr. Pickard has only recently returned to his duties at Llanelly and he writes with obvious enthusiasm about the three months he spent at Henley. The account he gives in his Chairman's Address of the developments which have taken place at Llanelly since his appointment in 1942 reflects the energy and enthusiasm which he puts into his day-to-day duties. He is a glutton for work and it would seem that his only worry about his three months stay at Henley was that he could not be in two places at once.

The choice of Tenby for the Section's second spring meeting was a popular one in every way (when the members went there in 1950 the organisation was still the old Wales and Monmouthshire Association) and the programme was as full as ever. On the Thursday the members had a strenuous time at golf and bowls, with distribution of the trophies at a dinner-dance in the evening, but Friday was much more strenuous—with a full business programme and a paper by Mr. M. S. Gaskill on 'Fuel Economy in the Gas Industry' (to which we shall return later) in addition to Mr. Pickard's address in the morning. According to the printed agenda the Section was to have discussed three autumn research communications at the afternoon session, but there was only time to deal with two—the report of the Institution Sub-Committee on Unaccounted-for Gas, and the recommendations of the Gasworks Safety Rules Committee. The 28th report of the Gas Education Committee was 'talked out.' Between the two sessions there was the official luncheon, with six speeches. Despite the best possible effort at time-keeping, the afternoon session was 25 minutes late in starting. We are sure Mr. Pickard will not take it amiss if we refer to the omission of a vote of thanks to Mr. Gaskill for what was an excellent paper; it was merely for lack of time that no formal vote was taken—everybody, in fact, was grateful, just as they were for Mr. Pickard's own Chairman's Address. The members' appreciation was in inverse ratio to the brevity of the speeches by the proposer and seconder of the vote of thanks to him.

SKEGNESS: AN ANNUAL EVENT

HAVING successfully survived the first three years of nationalisation, the East Midlands Gas Board's staff conference at Skegness may be said to have become an annual event. The gatherings on May 1 and 2 were the first over which Mr. Sydney Smith had presided since the elevation of Mr. Henry Jones to the Deputy Chairmanship of the Gas Council had led to his accession to the East Midlands chair. Those who had been responsible for preparing the programme had preserved a freshness of interest in every item, though Mr. Smith would be the first to agree that the proceedings bore unmistakable evidence of the enthusiasm with which Mr. Jones initiated the conferences in 1950. The basis of representation among the guests was again broadened, and included representatives of the Gas Consultative Council and all the members of the trade union sides of the Area Joint Councils. Referring to the latter, Mr. Smith said that a basis of mutual trust had been established with the great majority of union representatives, but it would be a mistake to imagine that mutual trust meant no disagreement; it certainly did not. They joined battle on many issues, but had never failed to reach a compromise acceptable to both sides. The Chairman's 'opening remarks' were more like a presidential address; they were a record of the past year's achievements, a call for further solid hard work and sustained effort, and a definition of the scope for promotion for those who have proved their worth.

Following precedent, the second day's proceedings were prefaced by an address from the Deputy Chairman, and here again we were on new ground. At the end of Mr. E. H. Harman's discourse we felt there had never been a better start to a full day's programme. At each of the three conferences to date stress has been laid on the necessity for active co-operation between all sections of the organisation, and particularly between accountants and engineers. Whereas Mr. Smith on the first day had dealt to a large extent with the engineering side, Mr. Harman addressed himself to the financial structure and said there was sufficient evidence to show that whatever might be the medium- or long-term effects vesting resulted in a less flexible type of financial charge although not reduced in amount and without any enhanced ability to create reserves. On nationalisation the accumulated free reserves of all undertakings were automatically capitalised in accordance with established accountancy practice and on the instructions of the Gas Council, and were therefore no longer available to offset deficiencies. Mr. Harman also laid the 'public money' bogey and ended with a plea that when building up gas loads preference should be given to those processes where it was either an essential fuel or where the natural advantages were fully exploited.

The four papers covered industrial gas utilisation, accountancy, distribution, and divisional organisation—the last being especially topical at a time when, in the view of the Board, the function of the middle stratum—the sub-division—has become less needful. Question time—not for publication—was interesting in that it was a 'free for all' occasion for enlightenment on a variety of topics, but the number of slips handed in seemed to be somewhat below previous records; obviously as time goes on there will be less need for questions for the simple reason that the staff will already know more or less all the answers. Much of the success of the conference again lay in the informal talks which Board members and staff had between the formal sessions. On the social side, the dinner speeches were bright and humorous, and golf at Woodhall Spa on the Saturday rounded off another memorable event in the short history of the East Midlands Board.

HUMAN RELATIONSHIPS

IT was appropriate that the theme of the address which Mr. A. McDonald gave as Chairman of the Manchester and District Section of the Institution of Gas Engineers should be human relationships in the gas industry, for without harmony at all levels the industry cannot work effectively and will not in the long run attract to its ranks the types of recruit it needs. After three years of nationalisation, Mr. McDonald senses that many individuals feel that their particular problems remain unsolved; at the same time 'the foundations have been laid, the machinery is in place . . . . no mean achievement in the comparatively short period of nationalisation.' What has been done in this sphere is the result of joint efforts. Employees have become partners in the industry. Employers cannot dictate terms; on the other hand, the unions must accept their share of the responsibility which partnership places on their shoulders. And there remains the need for more intelligent obedience, a fuller spirit of co-operation, a greater capacity on the part of officials to inspire confidence in the general body of employees.

Logically, Mr. McDonald went on to say that if we are to have the right type of man in the right place we are at once faced with the two problems of selection and training; and we regard that section of the address which explains the approach of the North Eastern Gas Board to these problems as both important and enlightened. The question of selection involves the matter of promotion, and Mr. McDonald had something to say on seniority or long service as the arbiter of promotion. 'I agree wholeheartedly,' he remarked, 'with promoting our own employees, and in fact the principle of giving our own employees the first opportunity has been adopted by my Board.' On the other hand, there is nothing to be said in favour of placing, for the sake of sentimentality or a very short-sighted view of harmony, an unsuitable man in a job, whatever its nature. It benefits neither the man nor those working under him. And unless there is satisfaction in the selection of the right men from within the industry, a wider field should be explored.

The key to the twin problems lies in training and education. The North Eastern Gas Board is not alone, of course, in its concern to assist employees to further their knowledge and experience in order to fit themselves for positions of further responsibility, and the Board has already done much to translate its ideas into practice. Schemes of training on quite generous lines

and covering a fairly wide field have been inaugurated and are being worked and stepped-up. Time taken up on training involves loss of working time, but there can be no doubt that, taking the long-term view, a substantial return can be obtained by sacrificing a certain amount of time in the aim of improved efficiency—and human relationships. The North Eastern Gas Board is convinced of the value of training and has prepared a comprehensive programme. This programme was dealt with by Mr. McDonald in his address, which we publish on later pages of our issue today. We need not elaborate on the author's outline, but the pupilage schemes adopted are surely commendable, as is also the liaison with the Watson House Centre of the North Thames Gas Board—a liaison designed to raise the standard on the service side. Pupilage schemes have been adopted to cover personnel recruited from the universities and personnel recruited direct from school. The plan as a whole will apply to all spheres of activity from apprentice craftsmen to the technical student and office staff, so that 'the best employees will be encouraged to pass on from craft to technical and administrative schemes, and promotion from the lowest to the highest grades will be possible.' The plan, we are sure, is destined to provide results which will have a significant bearing on human relationships in the nationalised gas industry.

BUTANE FOR ENRICHMENT

WE have described and pictured in our pages the experiment being made and the plant installed by the Wales Gas Board at Whitland, Carmarthenshire, where the small community there, with a total of 240 consumers, is being supplied solely with a mixture of butane and air. Another interesting experiment in the application of butane to gas supply has been carried out by the North Eastern Gas Board in collaboration with Humphreys and Glasgow, Ltd. In this case the diluent mixed with butane is blue water gas, and the resultant mixture has characteristics very similar to those of coal gas. The installation in question, which we describe on p. 376, was put in hand early in 1950 and has now been in operation at Spenborough for a year with, we are assured, highly encouraging results. As our article explains, it was considered that the requirements of a plant successfully to replace uneconomic coal gas installations at very small works must be simplicity and reliability in operation and the production of a gas with characteristics as close as possible to those of town gas commonly supplied—and at a cost lower than that of the coal gas it replaces.

With the mixed blue water gas/butane installation described, on a small works one man can operate the plant and also do all the other jobs which are necessary about the works. The mixture of butane and blue water gas can be controlled automatically and without supervision to give any calorific value required. During the past winter the plant at Spenborough has been in daily operation and for two months in continuous operation 24 hours a day, the gas being mixed with the coal gas produced on the works for normal distribution. We are informed that costs have worked out very favourably in comparison with other proposals for supplying small works and also when compared with the actual results now being obtained on such works with carbonising plant. Interesting details regarding possible future development are given in the article we publish today.

Personal

Mr. W. W. G. Taylor has been appointed Area Sales Manager of Smith Meters, Ltd., for the South Eastern and Southern areas.

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Mr. D. C. E. Poole, F.INST.EX.E., a Director of George Wilson (Gas Meters), Ltd., has been returned unopposed to represent the Baginton Village Council, which extends over a very large area in Mid-Warwickshire, and is a section of the Warwickshire County Council.

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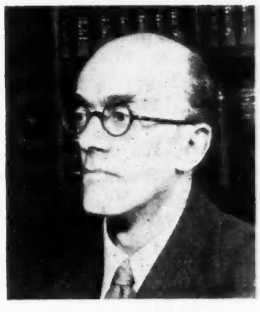
Dr. H. Hollings, O.B.E., will, at the end of June, relinquish his appointment as Director of the London Research Station of the Gas Council and as Controller of Research North Thames Gas Board. **Dr. R. H. Griffith** has been appointed by the Gas Council to be the Director of the London Research Station and by the North Thames Gas Board to be their Controller of Research.

Dr. H. Hollings



Dr. R. H. Griffith

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Mr. R. J. Hird B.SC., for the past 3½ years Chief Engineer of Mavor & Coulson, Ltd., and previously Manager of the Bridgeton works, has been appointed to the Board of Directors. Mr. Hird joined the staff of Mavor & Coulson, Ltd., in 1932. He has been for some years Chairman of the Glasgow branch of the Institution of Works Managers.

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Sir Harry Railing, Chairman and Joint Managing Director of the General Electric Co., Ltd., has been elected President of the British Electrical and Allied Manufacturers' Association. **Mr. T. F. Lister** (Hackbridge and Hewittic Electric Co., Ltd.) has been re-elected Chairman. **Mr. D. D. Walker** (Evershed and Vignoles Ltd.) has been elected Vice-Chairman and **Mr. James Oldroyd**, Secretary.

Obituary

The death took place on May 4, at the age of 79, of **Mr. John King,** Chairman and Founder of John King & Son (Enamellers), Ltd.

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Mr. Joseph James Carter, Vice-Chairman of Crossley Brothers Ltd., and Chairman of the subsidiary, Crossley Premier Engines, Ltd., Sandiacre, died on May 8. Mr. Carter joined the firm 60 years ago, and had occupied the position of Managing Director for 35 years, from which office he retired in April of last year.

Mr. G. H. A. Twist, for many years Industrial Sales Manager of the former Lincoln Gas Department, has died, aged 67. Mr. Twist was with the Doncaster undertaking before going to Lincoln in 1919. He was active in the formation of the Eastern Counties Gas Salesmen's Circle, in which he served as Chairman and Hon. Secretary. He was for a number of years honorary examiner at Cambridge for the Eastern Counties Education Committee and was a member of the Industrial Technical Panel at Leeds.

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The death has occurred of **Mr. W. E. Thompson,** Grimsby, after a second operation in the Grimsby Hospital. Mr. Thompson was born at Grange-over-Sands in 1888, his father having been Gas Manager at Kendal. He served his apprenticeship with Drakes, Ltd., and at the early age of 21 was sent out to Buenos Aires in charge of the erection of a horizontal installation. At one time he was Manager of the Hemsworth gasworks, but eventually returned to Drakes. He carried out the erection of 54 benches of retorts at Beckton, as well as numerous other erecting jobs. In 1931, Mr. Thompson secured an appointment as Works Superintendent with the Grimsby Gas Company, under Colonel J. Kennington. Through ill-health, he was compelled to cease work in October, 1951. He leaves a widow, two sons, and one daughter.

Mr. Charles Harris, Director of Humphreys & Glasgow, Ltd., from 1919, died at Oxford on May 4, aged 82. He will be affectionately remembered by many of the older members of the gas engineering profession and he was especially well known in London and the Home Counties. In collaboration with the late Thomas Goulden, in the early 'nineties he erected and operated the first Beckton carburetted water gas plant, which was one of the first water gas plants installed by any gasworks in Great Britain. Mr. Harris was a member of the Humphreys & Glasgow organisation for more than 50 years.

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The death has occurred at the age of 64 of **Mr. George F. Mitchell,** President of the American Gas Association and President of the Peoples' Gas Light and Coke Company of Chicago. One of the American gas industry's outstanding leaders for decades, Mr. Mitchell was elected A.G.A. President in October, 1951, prior to which he had served as first vice-president during 1950-51; second vice-president and chairman of the Manufactured Gas Department during 1949-50; and as a director for many years. He also served on many important committees and at the time of his death was active on several of them. In addition to guiding one of the country's large utilities, Mr. Mitchell was a leader in the country-wide expansion of natural gas.

Diary

May 16.—Scottish Juniors (Western): Visit to Parkinson Stove Co., Ltd., Birmingham.

May 16-17.—British Gas Staff Association: Annual Conference, Harrogate.

May 19.—Eastern G.C.C.: Connaught Rooms, W.C.2. 2 p.m.

May 20.—London and Counties Coke Sales Circle: Annual General Meeting, Holborn Restaurant, 2.30 p.m.

May 20.—London and Southern Section, I.G.E.: Spring General Meeting, Chairman's Address by Dr. A. E. Haffner, Connaught Rooms, W.C.2, 2.30 p.m., preceded by Luncheon, 1 p.m.

May 20-23.—Illuminating Engineering Society: Summer Meeting, Eastbourne.

May 21.—South Western Section, I.G.E.: 'Present Day Distribution Procedure,' R. Marsh. At Plymouth.

May 21.—London and Southern Juniors: Visit to works of Benham and Sons, Ltd., Wandsworth, 2.30 p.m.

May 21.—Manchester Juniors: Visit to W. J. Jenkins & Co., Ltd., Beehive Works, Retford.

May 21.—Yorkshire Juniors: Visit to works of Whessoe, Ltd., Darlington. 'The Contractors' Place in the Gas Industry,' K. W. Francombe. (Whessoe, Ltd.)

May 21.—Northern Juniors: Special Speaker Meeting, 'The 1948 Gas Act and the Works Manager,' John F. Jackson, Secretary, Northern Gas Board; at Middlesbrough.

May 24.—Eastern Juniors: Annual General Meeting, Stamford, followed by afternoon visit to places of interest. Ladies invited.

May 24.—Scottish Juniors (Western): President's Day visit to Stirling gasworks.

May 26.—West Midlands G.C.C.: Dudley Room, Queen's Hotel, Birmingham, 2.30 p.m.

May 27.—Gas Officers' Guild: Annual General Meeting, Bishop Partridge Hall, Church House, S.W.1. 5 p.m.

May 27-30.—Institution of Gas Engineers: 89th Annual General Meeting, London. (For full programme see *Journal* of May 7, p. 300.)

May 29.—North Thames G.C.C.: Westminster City Hall, 2.30 p.m.

June 3.—South Eastern G.C.C.: Caxton Hall, Westminster, 2.15 p.m.

June 4.—Southern G.C.C.: Grand Hotel, Bournemouth, 11 a.m.

June 5.—Midland Juniors: Ladies' Day.

June 7.—Wales Juniors (North Wales Section): Ladies' Day, Llandudno.

June 7.—Scottish Juniors (Eastern): Annual Outing, Grangemouth.

June 9-10.—Eastern Section, I.G.E.: Spring Meeting, Grand Hotel, Sheringham. June 9: Golf and Bowls; afternoon meeting, with Chairman's Address by T. C. Battersby; evening reception. June 10: Business meeting, paper by G. E. Thomas, Industrial Gas Engineer, Watford Division; official luncheon.

June 11.—South Western G.C.C.: Meeting at 34, Bridge Street, Taunton, 11 a.m.

TAR PRODUCTS RESEARCH

The main emphasis of the work of the Coal Tar Research Association (Report of the D.S.I.R. for 1950-51) has again been on the utilisation of creosote and pitch. In addition, research is being carried out on the causes and prevention of corrosion of tar distilling equipment and of carbon blockage in pipe stills and on new and improved analytical methods for tar products.

In studies of the carbonisation of pitch the results suggest that an impervious coke cannot be obtained by straight carbonisation, better results being obtained by carbonisation in presence of dehydrogenating agents such as sulphur.

A survey of the corrosion of tar distillation equipment throughout the industry has revealed a number of interesting points now under investigation in the laboratories. Work has continued on the causes of carbon deposition in the heating coils of tar pipe stills. There is apparently a threshold tar temperature of about 300°C. corresponding to a tube wall temperature of about 500°C., below which little coke formation occurs and above which the amount of deposit formed increases rapidly with increasing temperature. Tars vary in their tendency to form carbon deposits. Coke oven tar is comparatively stable, some vertical retort tars yield a considerable amount of carbon on their first pass through a heated tube and are then much more stable, but unstability is again produced in storage.

Consent of the Minister of Fuel and Power has been granted to the establishment of a new section of the Hams Hall power station, near Birmingham, to be known as the Hams Hall 'C' station. The present Hams Hall 'A' and 'B' power stations have an installed capacity of 249.45 MW and 321 MW respectively. The new 'C' section will have an installed capacity of 360 MW made up of six 60 MW turbo-generators each served by a boiler unit having an evaporative capacity of 550,000 lb. of steam an hour. Three cooling towers, each having a capacity of 6 mill. gal. of water an hour, will serve the new section.

News in Brief

Four Gas Service Vans owned by the Newcastle Division of the Northern Gas Board have been equipped with radio which keeps them in touch with headquarters. With this system, it is understood, one van can carry out five jobs in the time taken for two under the old method whereby a man reported to head office after completing each job.

The Demand for Gas in Limerick continues to increase with the increasing industries of that city. For the year ended March 31 last, the sale of gas amounted to nearly 14½ mill. cu.ft., or 61,000 more therms than the previous year, with an increased revenue of £8,843. The record of 642,876 therms represents a record in the undertaking, but it is evident that that figure will be exceeded in the coming 12 months. The 450 B.Th.U. is to be the standard calorific value of the future—an increase from 420. The undertaking recently received a thorough overhaul, and the coal reserve is now the highest for over 12 years.

The Joint Emergency Committee of the professions, meeting at B.M.A. House, London, on April 30, decided to enforce certain sanctions against the Durham County Council following the failure of the Council to provide the satisfactory undertakings asked for by the Committee that professional employees should not be subjected to the policy of compulsory membership of a trade union or professional organisation (the 'closed shop') in whatever manner, direct or indirect, it might be applied. The Committee decided that, as a preliminary measure, the professional journals of its constituent organisations should be asked forthwith to refuse to publish advertisements of any appointment under the Durham County Council.

The Annual General Meeting of the Gas Officers' Guild will be held at 5 p.m. on Tuesday, May 27, in the Bishop Partridge Hall, Church House, Great Smith Street, Westminster, S.W.1, immediately following the termination of the afternoon session of the meeting of the Institution of Gas Engineers in the same building. The Guild meeting is open specifically to members, but prospective members are invited to attend.

The American Library at 41, Grosvenor Square, W.1, has recently opened an industrial section, which includes American books, periodicals, government documents, and other literature in the fields of technology, engineering, management, trade and agriculture. Books and other material can be borrowed by anyone in Great Britain and, where necessary, will be sent by post. In cases where a book or periodical is not available for loan, photostatic copies of special articles will be provided free of charge. The Library also answers requests for information received by telephone or letter.

The Rotary Club of Rugeley, Staffordshire, recently promoted a Careers Exhibition at a local secondary modern school. It was not possible to cover all trades and professions, but those omitted were covered by an information bureau provided by the youth employment officer. The West Midlands Gas Board exhibit occupied a large classroom in which was shown a display emphasising the variety of opportunities afforded young people entering the industry, together with educational and welfare facilities. Supporting this central feature were exhibits such as a model gasworks and a fitter's apprentice at work on a bench.

SPORT CELEBRITIES IN WALES

In our issue last week (p. 313) we recounted the Rugby football match between the team led by Mr. Ivor Preece (George Wilson Gas Meters, Ltd.) and the Abertillery R.F.C. As this picture shows, the event was a happy one for both players and spectators.

B.C.U.R.A.

AT the annual meeting of the British Coal Utilisation Research Association on May 7, the President, Sir Charles Ellis, F.R.S., explained that the problems of smoke were being tackled along four different lines. The laboratory studies were designed to find what factors affected the release of smoke when coal burned, whether any chemical pretreatment of coal could reduce smoke formation, under what conditions released tar vapours could be destroyed, and finally what design factors in domestic appliances would lead to reduced emission. The studies were at an early stage, but one or two interesting facts had emerged. They found, for instance, that when a hydrocarbon burned in an atmosphere of air it produced more soot than when the flame was 'reversed' so that the air, as it were, 'burned' in an atmosphere of the gas; moreover, the soot formed differed in the two cases. No explanation of this was yet available.

Their work on domestic heating, he continued, had been deliberately directed towards wide objectives. The dominant need of means and measures to improve coal utilisation efficiency in 14 mill. existing houses had not been allowed to obscure the potentialities for much better achievements in houses now being built. They had indeed carried out work on almost every possible mode of house heating with coal. During the year, however, it was felt desirable to take stock of the prospects of the open type in comparison with the closed type of appliance. They had reached the conclusion that, whatever success and popularity the closed domestic stove might have attained in other lands, it could not offer the complete answer in this country. Moreover, they found that the open type of appliance was capable of considerable improvement as regards both economy and smokeless burning. They were hoping that it would be possible for industry to produce an appliance that was in effect a compromise between the wholly open and the wholly closed stove, which could give improved room comfort with some diminution in consumption of fuel. High coal using efficiency in such an appliance depended upon restricting to a minimum the flow of warm air through the chimney just as occurred with the wholly closed stove.

At the annual luncheon on the same day, held at the Savoy Hotel, Mr. Geoffrey Lloyd, Minister of Fuel and Power, proposing the toast of 'B.C.U.R.A.,' suggested that an element of the humanities should be introduced into scientific education. A real problem and danger at the present time arose, he said, from the tremendous degree of specialisation which was now necessary to get to the frontiers of knowledge, and this might produce an ill-balanced whole personality.

Response to the toast was made by Sir Charles Ellis, who presented Professor Sir Alfred Egerton, F.R.S., with the Coal Science Medal.

The toast of 'The Guests' was in the hands of Sir John Charrington, Vice-President of the Association, and Viscount Waverley replied.

MIDDLESBROUGH GRID PROGRESS

BECAUSE of the shortage of cast iron it has been found necessary to consider the possibility of laying gas mains in back gardens of new housing estates in the Middlesbrough division of the Northern Gas Board in order to effect economy in the use of pipes and to enable the laying of gas mains to keep pace with the erection of new houses. This was reported by Mr. J. W. Pallister, Divisional General Manager, at a meeting of Middlesbrough Division Consumers' Committee on April 28, when he stated that such a step was a complete departure from the existing practice of laying gas mains in the footpaths in the front of the houses. At present the proposal was receiving the consideration of the Middlesbrough Engineer and Surveyor and the Housing Committee.

Mr. Pallister said that the gas output for the whole of the division showed an increase of just under 2% for January and February but there was a reduction of nearly 8% in March due to the milder weather. During January output of gas reached the record total of 326,172,000 cu.ft. and January 28 was a record day with an output of 12,735,000 cu.ft.

Foundations were now being installed, said Mr. Pallister, of a new water gas plant which was originally scheduled for Redcar but had since been transferred to the Middlesbrough unit. The capacity of the new gas-making plant when the whole scheme was completed would be 8 mill cu.ft. per day compared with 1.75 mill. on the old plant.

Turning to the Redcar unit, Mr. Pallister said an 18 in. main from Wilton to the Redcar gasworks had been completed. The completion of this main meant that the Middlesbrough unit, the South Bank unit and Redcar unit were interlinked by means of a large diameter grid main. Work was now proceeding on the laying of a 12 in. main from the Redcar unit to Skelton via Saltburn. This main would join into the existing link from Skelton to Guisborough and when the laying of a 6 in. main from the Cleveland works at Skinningrove to Skelton was completed, the whole division would be connected by means of a grid.

Mr. Pallister concluded by referring to showrooms in the Guisborough unit. He stated that work had commenced on the reconstruction of the premises acquired at Guisborough so as to make them suitable for showroom purposes and for the accommodation of distribution staff. The whole of the construction was being done by the Board's own labour.

North Western Fuel Chiefs Around Microphone

BETTER co-operation between coal, gas, and electricity was one of the main issues discussed by leaders of the three fuel industries in the North West when they took part in a triangular broadcast on the future of fuel from the B.B.C.'s Manchester studios on April 18.

Taking part were Mr. D. P. Welman, Chairman of the North Western Gas Board, Colonel Geoffrey Bolton, Chairman of the National Coal Board's N.W. Division, and Mr. A. R. Cooper, Controller, N.W. Division, B.E.A.

'It should not be too difficult to achieve some form of co-operation between us,' said Colonel Bolton. 'We already have a lot in common, and we should be able to get together and discuss the solution to our problems, not from the point of view of what is best for each of us, but rather from the basis of what is best in the national interest.'

Mr. Welman said that co-operation between the three industries was already taking place in the North West as the broadcast showed. Competition could be abolished in some fields. But in other fields, the fuel industries should remain keen competitors where competition would help the public to get the cheapest and most efficient fuel service possible.

Kirkcudbright Opposed to Return of Gasworks

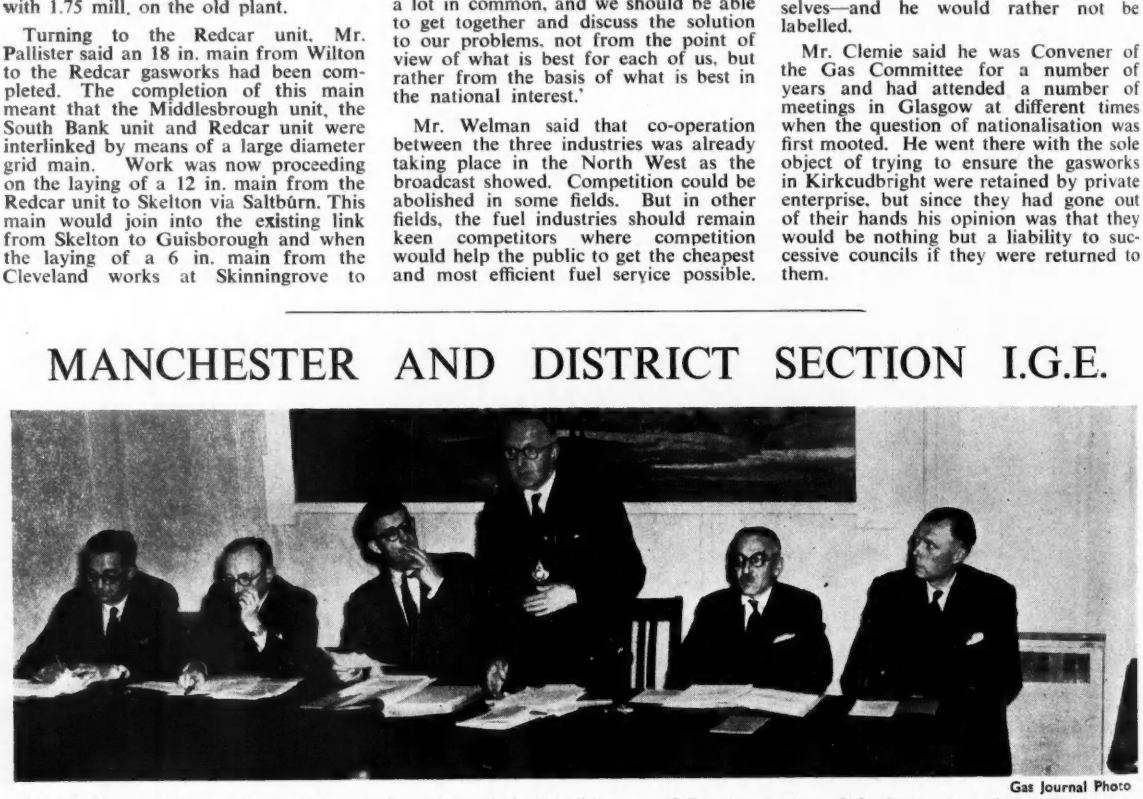
MEMBERS of the Kirkcudbright Town Council, at a meeting on April 30, agreed that they had no desire whatever to have the gasworks returned to them in the possible event of the industry being de-nationalised. Provost Kennedy said that proposals were being made by the Edinburgh Conservative Association to hand gasworks back to local authorities, and at the last meeting the question whether or not Kirkcudbright Town Council, as the former owners of the local undertaking, desired to administer it in the future had been delayed.

The Town Clerk and himself had in the interval sought the views of certain burgh delegates in attendance at the recent Convention of Burghs, and he thought the general view was that very few were inclined to support a reversal of the present system. If that was the view of the Council he thought the Clerk might be asked to state the position of Kirkcudbright to the responsible authorities.

Mr. Holroyd suggested there was a danger that by indicating their views they were departing from the principle of being non-political of which they had for so very long been proud. He would hate the Council to be classified as politically inclined one way or the other, and he felt that by committing themselves to something which, when all was said and done, was the prerogative of the House of Commons, they were labelling themselves—and he would rather not be labelled.

Mr. Clemie said he was Convener of the Gas Committee for a number of years and had attended a number of meetings in Glasgow at different times when the question of nationalisation was first mooted. He went there with the sole object of trying to ensure the gasworks in Kirkcudbright were retained by private enterprise, but since they had gone out of their hands his opinion was that they would be nothing but a liability to successive councils if they were returned to them.

MANCHESTER AND DISTRICT SECTION I.G.E.



Gas Journal Photo

Mr. T. Haworth opens the second annual meeting of the Manchester and District Section of the Institution of Gas Engineers. With him, left to right, are Messrs. H. Johnston, A. K. Collinge, A. H. Nicholson, A. McDonald, and Dr. R. S. Edwards.

INSTITUTION OF GAS ENGINEERS

Wales and Mon. Section Re-visits Tenby

THE second spring meeting of the Wales and Monmouthshire Section of the Institution of Gas Engineers was held on May 8 and 9 at Tenby, where the last meeting of the former Wales and Monmouthshire Association before its incorporation as a district section was held two years ago. There were large attendances for the two business sessions under the Chairmanship of Mr. A. Pickard, Engineer, Manager, and Secretary of the Llanelly and Gowerton undertakings as well as for the social functions, to which ladies were invited. Unfortunately, Mr. T. Mervyn Jones and Mr. R. S. Snelling, Chairman and Deputy Chairman of the Wales Gas Board, were unable to attend, but a warm welcome was extended to Mr. E. M. Edwards, full time member of the Board and a past President and Secretary, on his return from his visit to the United States as a member of the gas industry productivity team. The Institution was well represented by Mr. G. E. Currier, Senior Vice-President, and Mr. A. G. Higgins, Assistant Secretary.

The MAYOR OF TENBY, Mr. W. S. John, gave the members a cordial civic welcome at the opening of the business session at the Little Theatre.

The HON. SECRETARY, Mr. K. E. Tiddy, reported apologies for absence from Mr. Geoffrey Lloyd, Minister of Fuel and Power, Mr. R. N. Quirk, Mr. J. S. Smith, and Major G. C. Hyde, of the Ministry of Fuel and Power; Mr. J. H. Dyde and Dr. W. T. K. Braunholtz, President and Secretary of the Institution of Gas Engineers; Dr. A. B. Badger, Industrial Relations Officer, Gas Council; Sir Frederick West, Mr. A. McDonald, Chairman of the Manchester Section of the Institution, and many others.

Badge of Office

Mr. J. POWDRILL (Pontypool) immediate past Chairman, invested his successor, Mr. Pickard, with the new badge of office, to the purchase of which the H. D. Madden Memorial Fund had been devoted. Mr. Powdrill recalled that Mr. Madden had been a very active member of the Association and said it was felt that the badge would be a fitting memorial to him. It comprised a collar to which was attached a solid gold badge bearing the Institution crest and the name of the Section; a bar would be added annually to commemorate the name of the Chairman.

Mr. PICKARD, in acknowledging the honour, said the badge should have been worn for the first time by Mr. Powdrill as the first Chairman of the Section, but there had been unavoidable delays and the badge had been delivered only within the last few days.

The HON. SECRETARY presented a formal report on the winding up of the fund.

Seven corporate members of the Institution were welcomed as members of the Section, and three associates of the Institution were elected as members of the Section, viz.: (a) W. C. Higgs (Wilmslow), M. F. Scott (Cardiff); J. F. Day (Newport); L. J. L. Walker (R. and J. Dempster (Manchester); M. S. Gaskill (West's Gas Improvement Co. Manchester); L. Gray (Neath); and R. Pollard (R. and J. Dempster, Manchester); (b) R. E. Wiles (Ammanford); J. F. Kelly (Penmaenmawr), and H. Adcock (Metropolitan Gas Meters, Nottingham).

It was unanimously agreed to subscribe 25 guineas to the Benevolent Fund of the Institution.

Notice of motion was given by the Management Committee, for consideration at the annual meeting in the autumn, regarding an increase in the subscription to 30s. per annum as from January 1, 1953.

Mr. PICKARD then delivered his Chairman's Address, an abstract of which will be published in a later issue of the *Journal*.

A vote of thanks was accorded to Mr. Pickard on the proposition of Mr. R. O. ROBERTS (Connah's Quay), seconded by Mr. G. FITTON (Neath).

Mr. M. S. GASKILL (West's Gas Improvement Co., Ltd.) presented a paper on 'Fuel Economy in the Gas industry.' The paper and discussion will be published later.

The afternoon was devoted to discussions on the report of the Sub-Committee of the Institution of Gas Engineers on Unaccounted-for Gas and the recommendations of the Gasworks Safety Rules Committee, which were presented the autumn research meeting of the Institution last November. The former, which was not discussed at the time of its presentation, has been discussed at meetings of the North of England, Midland, and Eastern Sections.

Unaccounted-for Gas

Mr. A. H. DYER (Newport) introduced the discussion on unaccounted-for gas and stressed three points—the importance of regular testing of station meters, the need for realising that a new consumer's meter was not necessarily an accurate meter, and attention to services as they approached the end of their 'average' life.

Mr. W. T. HIRD, Distribution Engineer, said the figure for overall loss of unaccounted-for gas in terms of coal and money for Wales as a whole was stupendous. In many undertakings the achievement of a reasonable—not even low—figure would make all the difference between profit and loss, and he suggested that before embarking on the expensive measures involved in making a complete check of unaccounted-for gas they should look to the minor points.

Mr. W. CLARK JACKSON said it was not reasonable to go to a works and expect a reduction from 28 or 30% unaccounted-for gas to a matter of 2%. There were better chances of improvement if they set some reasonable target. The Pembrokeshire group over which he presided had set itself a target of 10% throughout the group.

Mr. DARRELL W. REES (Pembroke Dock) said they knew there were certain things to do about unaccounted-for gas, but some lead should be given as to the order of doing them. To spend a lot of money on meter testing and changing when the trouble was due to bad mains was false economy.

Mr. DYER said that at Newport a full bench test was applied to every new meter sent out. A rather disturbing percentage of new meters were found to be actually wrong; whether it was due to bad handling in transport he did not know.

Mr. E. M. EDWARDS suggested that there was no need to discuss what was an admirable report at very great length. They should get on with the job of putting its recommendations into practice. One of the first problems was to see that the gas was non-corrosive. The next step was to ascertain what they were losing in money values. On the lowest basis it would be the cost of raw materials for gas manufacture, plus labour; the maximum would be the loss of those therms at their selling price; the truth lay somewhere between the two. The next step was to see in what direction the losses were likely to be taking place.

Safety Recommendations

Mr. J. H. CHAPMAN introduced the discussion on the recommendations of the Gasworks Safety Rules Committee, and said the need for safety precautions was greater than ever today. In pre-war days men were trained for an uninterrupted period before becoming operators themselves, and it was some years before they operated on their own initiative, and the routine became more or less automatic. The position today, and particularly since the war, was very different for two reasons, the call up of the partly trained man for national service, and the attraction of larger pay packets where speed was not of vital importance and contractors were able to offer overtime and week-end work.

Mr. W. D. REES (Port Talbot) suggested that copies of the safety regulations should be made available to all employees in the industry. It would be of great advantage if there was a freer flow of information about all types of accidents.

Mr. J. F. RUST (Newport) said the work of the Gasworks Safety Rules Committee was hampered because it did not always get the information it ought to get. He urged that anyone concerned with any sort of accident should let the Committee know all the details, however small it might be.

Mr. E. ABLETT (Swansea) spoke of the reluctance of some men to make use of gas masks and said that at Swansea they had changed from the heavy type to the light type issued during the war.

Mr. E. M. EDWARDS said those who had spent all their working lives in the gas industry had accepted their responsibilities as senior officers of undertakings and had looked on the safety of all employees as their own personal responsibility. The Institution publications were useful and valuable, but looking back over the years it was his experience that accidents were caused by the relatively simple things. It was not complicated matters that gave rise to accidents.

Mr. G. E. CURRIER, Vice-President of the Institution, said the recommendations were designed as a minimum standard, and there was no reason why they should not be made more stringent if occasion required. There was such a wide variety of plant throughout the country and its operation varied so much that it was impossible to keep all the recommendations to a single pattern.

Mr. S. L. WRIGHT (Gas Engineer, Wales Gas Board) said he was a member of the Safety Rules Committee, and his experience was that no one regretted the time spent. It was urged that all operations involving an element of danger should be carried out under the supervision of a trained and experienced person.

Time did not permit of a proposed discussion on the 28th report of the Gas Education Committee, and the meeting closed with a vote of thanks to Mr. Pickard for presiding and to Mr. Tiddy for his secretarial duties, proposed by Mr. W. CLARK JACKSON, seconded by Mr. H. T. Maycock, Senior Vice-Chairman.

Official Luncheon

There was an attendance of close on 200 at the official luncheon, at which Mr. Pickard presided.

Mr. G. E. CURRIER, Senior Vice-President of the Institution, proposed the toast of the Wales and Monmouthshire Section and warmly acknowledged the work on the Institution Council of the three members from Wales—Mr. Powdrill, Mr. Rust, and Mr. Dyer, the last of whom represented the British Junior Gas Associations Joint Council. A junior paper was to be presented at the forthcoming Institution meeting and he took this early opportunity of expressing a hope that a further paper would be forthcoming for the 1953 meeting. He paid tribute to the memory of two former Institution Presidents from Wales —Mr. H. D. Madden (1928) and Mr. J. H. Canning (1932) and congratulated the Section on its membership of 200 and its activities in a widely scattered area. Appealing on behalf of the Benevolent Fund he expressed sincere appreciation of the work of Mr. Pickard who, during the year of his Chairmanship of the Section, had considerably extended the interest of Wales members in the Fund. Some 23 new deeds of covenant had been completed and of a total addition of £28 13s. to the contributions, £22 8s. was under covenant.

The CHAIRMAN, in a brief response, said Mr. Mervyn Jones had asked him to apologise for his absence. He was especially glad to welcome Colonel Carr who was responsible for sending him to South Wales. Regarding Mr. Currier's reference to the Benevolent Fund he said that what he had done had been prompted only by a personal desire to help the needy.

Impressions of America

Mr. E. M. EDWARDS, who proposed the toast of the prosperity of the borough of Tenby, said that during his recent tour as a member of the gas industry productivity team in America he travelled 7,000 miles by sea and 12,000 on land in a space of six weeks. Many organisations and gas undertakings were visited, and he paid tribute to the courtesy, help, and assistance so freely extended to the team. Of the American gas industry they would not expect him to say much at this stage. The information obtained would be closely studied and the report they had been asked to prepare would be completed as speedily as possible. Differences in technique existed between Great Britain and the States, principally because 95% of the gas supplied in America was natural gas. This was a declining asset and far-seeing minds were already seeking alternative methods of maintaining gas supplies when natural gas became exhausted. Whatever differences in practice existed, fundamentals remained unaltered and he hoped the interchange of views and the report to be issued would prove of value.

Mr. Edwards went on to give a fascinating story of new sights and experiences, mentioning incidentally that during the tour he had discovered 55 relatives of whose existence he had previously been unaware.

Mr. W. S. JOHN, Mayor of Tenby, replying to the toast, said that Tenby had had a gas supply since 1836. Originally introduced by the council, it passed into the hands of a company and was eventually taken by the Wales Gas Board. The people of Tenby, however, still liked to regard Mr. W. R. Taylor, the local Engineer and Manager, as the Board. He was held in high esteem in the borough and was a very competent engineer and a delightful personality.

Mr. H. T. MAYCOCK, Senior Vice-Chairman, proposed the toast of the guests, among whom he specially mentioned Mr. Edwards and principal officers of the Wales Gas Board, Mr. Currier, Mr. Higgins, and many illustrious members of the Institution, and the Mayor and Town Clerk of Tenby.

An Outstanding Address

Colonel W. M. CARR, C.B.E., replied for the visitors. Congratulating Mr. Pickard on occupying the chair he said they had listened that day to an address which would be outstanding not only in the annals of the Wales and Monmouthshire Section but in the annals of the entire Institution. Mr. Pickard had dealt in a statesmanlike and able manner with the problems we were facing today. He referred particularly to the importance of the gas industry in the national fuel problem and had rightly stressed that real fuel economy could only be achieved by carbonisation. He (Colonel Carr) had said so in a memorandum which he submitted to the Prime Minister seven years ago when nationalisation was first mooted. As President of the Institution some years ago it was his privilege to visit the district associations, but he had seen no more happy meeting than that in which they were participating that day. The whole programme had been very well organised by the Management Committee.

Golf and bowls competitions were played on the Thursday, and the trophies were distributed at an enjoyable dinner and dance at the Royal Gatehouse Hotel in the evening. Mr. C. Holmes Hunt was there to present the rose bowl which he gave a few years ago for the bowls competition, and Mrs. Pickard distributed the other prizes. The results were:

Bowls: 1st, Gordon Hogg; 2nd, H. J. Stanley (Penmaenmawr).

Golf: Upjohn Cup: 1st, Claude Evans (Garw and Ogmore), 74 net; 2nd, J. P. Smith, 76 net; 3rd, W. Clark Jackson, 78 net. Dean Cup: 1st, C. Oswald, 7 down; 2nd, J. P. Smith, 8 down; 3rd, J. B. Clay, 11 down. (Best score in the Upjohn Cup was returned by F. Watts, 71 net, but not being a member he was not qualified to take the cup. Second place in the Dean Cup was taken by H. Clarkson, 7 down, who, not being a member, could not take the prize.)

Mr. PICKARD expressed thanks to Mr. Arthur Sadler, Mr. D. S. Davies, and Mr. Gordon Hogg for making the arrangements for the competitions.

Many members took the opportunity of visiting Whitland to inspect the butane/air plants which are now supplying gas to all the consumers in the area of supply. On the Friday evening there was a film show at the Royal Gatehouse Hotel, where Gas Council films (including a preview of the new 'Perfect Husband' film) were interspersed with topical pictures.

Cumberland and Westmorland Association

BY permission of the Northern Gas Board, the spring meeting of the Cumberland and Westmorland Gas Managers' Association was held at Cockermouth on May 8, under the Presidency of Mr. A. Field, Divisional General Manager, Penrith Division, Northern Gas Board.

Officers for 1952-53 were appointed as follows: President, R. Norgate, Cockermouth; Vice-President, Thos. R. Wicks, Workington; Hon. Secretary, W. B. Hetherington, Keswick.

After formal business, the opportunity was taken to inspect the Cockermouth gasworks where a new 250,000 cu.ft. capacity two-lift spiral guided holder together with a new district governor has recently been completed.

Through the kindness of the Northern Gas Board tea was provided at the Sun Hotel, Cockermouth, and Mr. Thos. R. Wicks asked the Divisional General Manager, Workington, Mr. J. George Pope, to convey to his Board the thanks of the Association for the kind hospitality shown to them.

IN PARLIAMENT

Expenditure on Office Buildings

EVER since the Scarcroft case Members of Parliament have watched with eagle eyes almost every penny which has been spent by nationalised industries on office building or reconstruction. At least two projects by area gas boards have come in for close scrutiny as a result of Questions in the House, though in neither instance could any irregularity be shown.

Yet another case was drawn to the attention of the Minister of Fuel and Power at Question Time on May 5 when Mr. J. H. HARE (Sudbury and Woodbridge) asked the Minister whether he would make a statement concerning the investigations he promised to carry out regarding the expenditure by the Eastern Electricity Board of more than £110,000 for the adaptation of Whersted House as their headquarters.

While the house itself was originally bought by the Board in 1948 for the comparatively modest sum of £20,000, it appears from the Minister's statement that the nigger in the woodpile was the death watch beetle, whose ravages, together with dry rot and normal extensions and repairs, accounted for a further £83,500. In spite of this, however, Mr. GEOFFREY LLOYD's information was that the work had been completed within the amount authorised by his predecessor.

Did his right hon. Friend, pursued Mr. HARE, think that the late Government were justified in allowing such a lavish amount to be spent on this nationalised headquarters when, in fact, there was a very considerable shortage of labour and materials needed for housing and other important purposes at the time?

On this point Mr. LLOYD said he would not like to make detailed comment. He thought it more important to get the present and the future right than to investigate the past. He had however, impressed on the Electricity Authority the need for the strictest economy in regard to offices, showrooms, and the like.

Press Advertising

Mr. GERALD NABARRO (Kidderminster) drew the Minister's attention to Press advertisements inserted by the Midlands Electricity Board in urban areas already electrified depicting a house fully lit by electricity. What, he asked, does the Electricity Board think householders around Birmingham are going to use—Christmas candles? Why should the electricity tariff be inflated by unnecessary expenditure on this kind of 'monstrosity?' How far had the Ministry succeeded in regulating sales promomotional advertising and would the Minister make a statement on the new principles which would guide publicity by gas and electricity undertakings?

Mr. LLOYD replied that new principles had been proposed for the avoidance of purely promotional advertising. He was grateful to his hon. Friend for drawing attention to these particular advertisements, and he was communicating with the area board concerned.

Refrigerator Sales

Captain ROBERT RYDER (Merton and Morden) asked the Minister of Supply if he was aware that, owing to the restriction on imports into such countries as Australia, New Zealand, South Africa, and France, the refrigeration industry is now facing a serious crisis; and whether, in view of this, he would permit increased sales in the home market.

In a written answer, the Parliamentary Secretary (Mr. A. R. W. LOW) said he was aware of the problem raised by these important restrictions, and the matter was being discussed with the industry.

The Annual Convention of the 'C.I.S.'

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Entry by certification only.

B.E.D.A. Criticised

The House of Commons 'power group'—a name given to them by the British Electrical Development Association—are annoyed with the Association for challenging their efforts to co-ordinate national fuel policy by deprecating the use of electricity for continuous space heating. About 65 Conservative M.P.s (headed by Mr. GERALD NABARRO and Mr. C. J. M. ALPORT) tabled a motion in the House on May 6 condemning B.E.D.A. for attacking the activities of a group of M.P.s interested in fuel economy. The motion reads:

> That this House views with grave concern the action of the British Electrical Development Association, a publicity organisation wholly supported financially by the British Electrical Authority, in using public moneys to impugn the motives of hon. Members of this House in the execution of their legitimate duties of criticising the policies of the Authority in the interests of the consumers;
>
> And regards this action as a violation of the principle that a body dependent upon public funds shall not seek to influence public opinion upon such matters of political controversy.

The attack to which the motion relates was contained in a document circulated to a number of newspapers and periodicals which referred to 'attempts by a power group in the House of Commons to bludgeon housewives into using other methods of heating than electricity.' This group, it was stated, proposed to legislate against housewives and compel them to cook their food, warm their rooms, and heat their water, not as they wish, but as the power group has decided is best for everybody. A further statement said that anyone who knew anything about totalitarian states would see which way this sort of thing was leading.

As the motion implies, grave issues are raised concerning the propriety of a subsidiary of a nationalised industry utilising public funds to attack M.P.s.

Certification of Stokers

When Mr. PHILIPS PRICE (Gloucestershire, West) called the Minister of Fuel and Power's attention to the desirability, in the interests of fuel economy, of evolving a plan for the certification of stokers there immediately opened up before our eyes a picture of the stoker of the future. We see a new era of prestige for this important, but too-often forgotten, member of the works staff, on whose efforts so much depends. We see the beginnings of an honoured profession playing its proper part in the country's weal, recognised and respected by membership of its own professional body—the Chartered Institute of Stokers—admission to which will be dependent upon producing the greatest amount of heat and power from the smallest quantity of fuel.

The subject must, nevertheless, be regarded with the seriousness its importance demands, and that Mr. GEOFFREY LLOYD does so regard it is clear from his statement that the certification of stokers is, in fact, before his Fuel Advisory Committee and he proposes to await their recommendations before considering the desirability of calling the interested parties together.

Blue Water Gas Enriched With Butane

A Successful Experiment at Spenborough

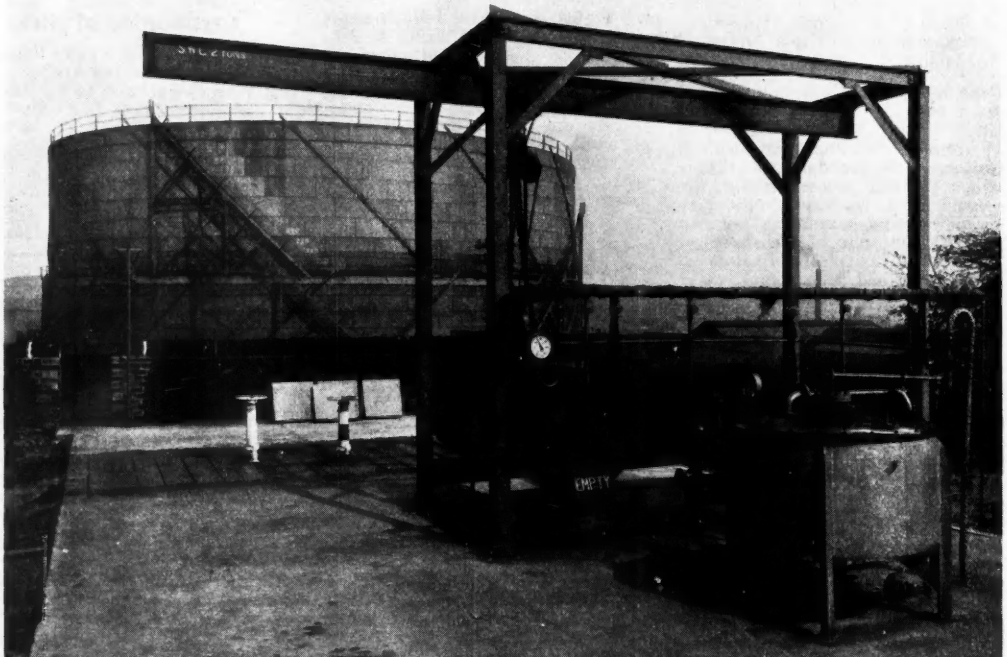
MUCH attention has been given recently to finding alternative forms of gas-making plant for very small works and, in particular, interest has centred in the use of the liquid petroleum gases which will become available in increasing quantities in this country as the new oil refineries are completed. A choice exists for diluent gases to mix with L.P. gas and one of the most promising developments has been the use of blue water gas for the purpose. This process has been pioneered by the North Eastern Gas Board in collaboration with Humphreys & Glasgow, Ltd., and Shellmex & B.P. Early in 1950 the first installation was put in hand. It has now been completed and has been in operation for nearly a year with encouraging results.

It was considered that the requirements of a plant successfully to replace uneconomic coal gas installations at very small works must be simplicity and reliability in operation, and the production of a gas suitable for distribution and utilisation—*i.e.*, with specific gravity and flame characteristics as nearly as possible to that of coal gas, and at a cost lower than that of the coal gas it replaces.

The use of L.P. gas diluted with air or producer gas suffers from the disadvantage that the specific gravity is much higher than coal gas, and the flame characteristics are very different. When using air as a diluent there is a free oxygen content in the mixed gas. Carburetted water gas plant meets most of the requirements, but the necessity for the gas-maker to spend most of his time in attendance constitutes a disadvantage in the case of plant of small capacity. Blue water gas plant, on the other hand, will operate without any supervision, except for charging and clinkering at infrequent intervals, so that on a small works one man can operate the plant and also do all the other jobs which are necessary about the works, leaving the plant unattended for two hours or more at a time between the charges. Blue water gas forms an excellent diluent for liquid petroleum gas as the characteristics of the mixed gas are very similar to coal gas. The mixing can be controlled automatically and without supervision to give any calorific value required.

The North Eastern Gas Board decided to install a plant of this type and chose Spenborough as the site. This is actually a medium sized works but it offered the best facilities for testing and experimental work, and it was decided to arrange the plant so that it could be easily moved to a small works if the experiments were successful. An order was placed with Humphreys & Glasgow in June, 1950, for a blue water gas plant with a capacity of 200,000 to 250,000 cu. ft. per day, and the plant was put to work in March, 1951. Arrangements were made with Shellmex & B.P. for the hire of some existing butane cylinders each capable of holding approximately 1,500 lb. of liquid butane.

A compensating holder of 1,000 cu. ft. capacity is installed to even out the peaks of production of the blue gas plant and the gas then passes through an exhauster and purifiers. The butane cylinders are connected through reducing valves and a steam



The Butane Storage Cylinders and Vaporiser.

heated vaporiser into the blue gas stream at the outlet of the purifiers. The degree of enrichment is controlled by a recording calorimeter in the mixed gas stream which is electrically connected to a motorised valve in the butane line. This valve automatically varies the quantity of butane injected so as to maintain a constant calorific value of 450 B.Th.U.

The only real trouble experienced when the plant was started up was in obtaining accurate control of the calorific value, but this was soon overcome and experimental work on the gas was undertaken. During the past winter the plant has been in daily operation, and for two months in continuous operation 24 hours a day. The gas has been mixed with the coal gas produced on the works for normal distribution, a portion being taken, before mixing, for experimental work on utilisation.

The specific gravity of the gas is about 0.65, which makes it suitable for distribution through existing systems. Tests which were carried out on appliances showed that only slight adjustments were necessary to use the gas and that these could be carried out by normal means of regulation and did not entail drilling out nozzles or other more elaborate alterations. Holder mixing is necessary to obtain a uniform gas but there appears to be no tendency towards stratification when the gas is stored. Costs have worked out very favourably in comparison with other proposals for supplying small works, and also when compared with the actual results now being obtained on such works with carbonising plant.

The Spenborough plant is rather larger than would be required on very small works, and now that the experimental work is successfully completed plans are being considered for a smaller plant suitable for works making up to 20 mill. cu. ft. per annum. This plant will be designed with a standby generator and other features so that repairs and maintenance can be carried out without difficulty, and ensure continuity of supply. On the smallest works, the plant would only have to operate one shift per day, but capital costs per therm would, of course, be reduced on the slightly larger works with two or three shift operation. It is likely that static storage of butane will be eliminated and large containers permanently mounted on trailers used. These would be coupled to the butane manifold on delivery and removed after use for recharging.

The Administrative Staff College

By A. PICKARD, M.Inst.Gas E.,

Engineer, Manager, and Secretary, Llanelly and Gowerton Undertakings, Wales Gas Board

TWELVE months ago, this Residential College, which is held in the beautiful country house Greenlands, near Henley-on-Thames, was no more than a vague name to many of us in our industry; since that time I have been privileged, by the good offices of the Wales Gas Board, to spend three months as a student on this course for training in higher administration. As I was the first person from our industry to do so, perhaps a brief statement of my experience and reactions will be of interest. It may be that it may also allay, in the minds of potential students, some of the trepidations which I myself felt when I accepted the valuable opportunity so kindly presented to me by my Board. This trepidation, I later found, had been fairly common with other students.

The idea, first mooted in 1945, was to meet a need for some course of training to improve the art of administrative ability, as distinct from professional, industrial, and commercial techniques. The scheme was greatly expedited when, in 1946, the 3rd Viscount Hambledon made Greenlands and its grounds available for the pjurposes of the College. It was not, however, until 1948 that modifications to the buildings and other arrangements were sufficiently advanced to enable the first course to be held. The College is maintained partly by subscriptions from industrial and commercial organisations and partly by students' fees.

Thirteen sessions, totalling 682 students, have now been held. The degree of success attained so far may be assessed to some small extent by two factors:—

(a) The rapid increase in the number of nominations of students from organisations which have not previously sent them, but which have heard of the success of former students; and

(b) Approximately 85% of students either return to more responsible positions, or are promoted to such positions within a short time of completing the course.

The College is fortunate in having at its head a man of considerable foresight, understanding, and experience in many spheres of national and international influence. He has built around him a staff with qualities similar to his own and has imbued that staff with some of his own sincere and deep belief in the inestimable value of the work which the College has undertaken. I refer to Mr. Noel F. Hall, M.A. (OXON.), A.M. (PRINCETON), who was Minister in charge of War Trade Department, British Embassy, Washington, during a most critical period of the late war, 1941-43.

Studies

The subjects studied are many and varied, but are roughly divided into five main groups:—

1. Comparative administrative structures (as represented within each syndicate of 10 students).
2. Internal organisation and administration.
3. External relations, local government, central government, trade unions and trade associations, etc.
4. Constructive administration in the mastery of changing circumstances (economic, social or technological sphere).
5. Directing authority.

The method employed may, I think, be termed the 'committee and conference.' method. The students are formed into 'syndicates' of 10, each student being drawn from a different organisation or sphere of activity. My own syndicate included a doctor of chemistry, a director of a wholesale and retail confectionery firm, a bank local director, a personnel officer of a large oil firm, a chief engineer of a Manchester steel works, a senior executive officer of the war office (now a chief executive officer), a machine shop supervisor, an executive of a Lancashire cotton holding company (controlling 37 spinning mills), the Brazilian sales manager of a large rubber company (who is to take complete control of a new factory now being erected in Brazil to produce 250,000 tyres per week), and myself.

Our average age was 42 years. (Average for a full normal course of 60 students is around 38.6 years). For account control systems, we also had occasionally attached to our syndicate a supernumary member of the staff, the chief accountant of an important Australian firm, who was spending six months in this country.

Each subject has a different chairman chosen from the syndicate members. He has the assistance of another syndicate member as secretary. A permanent member, known as the 'D/S' sits in at every syndicate study period. Usually each student takes three terms of office, either as chairman and/or secretary during the session. A brief is issued for each subject stating the field of study, the objective, and the scope and size of report required. There are also attached a comprehensive reading list and a timetable of the study periods available for that particular subject. Each chairman must organise these periods, allocate

the extensive reading matter, act as chairman at all the study periods when the subject is discussed, and finally draw up a report, which must be agreed with all his syndicate colleagues, incorporating the opinions and findings of the syndicate. Finally, he must present this before a conference of the entire college and distinguished visitors, where similar reports from five other syndicates on the same subject are presented. He must be prepared to explain and defend the views expressed in the report during the conference discussions.

As I see it, the reports, although dealing with matters of importance, are chiefly a means to an end; their preparation provides a training in the concise expression of corporate opinions, in logical thought, in accurate and effective presentation. The discussions which precede the preparation of a report provide ample opportunity for consideration of the various methods of dealing with a particular problem within the organisations represented, for argument and debate, for toning down bias and prejudice, for overcoming complexes, and for widening one's knowledge and deepening one's experience, out of the knowledge and experience of the nine other members present. The eventual presentation to the full College provide essential training in the full and adequate preparation of a case, which the speaker knows must be thoroughly prepared and defended if its findings are to be maintained; it creates confidence in one's ability to do this, and emphasises the need for it.

Specialist Visitors

Specialist visitors are available from time to time to give lectures to the whole College, or to take part in syndicate discussions. A permanent member of the College staff to whom chairmen or students may apply in case of doubt or difficulty is in charge of each subject.

It will, however, be appreciated that the greatest value is in the syndicate discussions when each individual draws upon either his own experience, or the experiences of organisations with which he is connected, in order to make a point, or for the benefit to his colleagues. Full and free discussion is encouraged and effectively takes place. This outspoken criticism and comment by responsible, experienced and important executives is a great stimulus to thought, to the desire for more and fuller information, and a training in the consideration and assessment of the pros and cons of any particular matter.

From the foregoing, it will be appreciated that the study of several subjects is proceeding simultaneously, which necessitates a readily adaptable mind in order to switch from the intensive study of one subject, to the intensive study of another during the course of each day, which is very often a demand made upon administrators of all kinds.

And then, during the last three weeks of the course, the previous work and reports begin to be drawn together in the climax of the study of constructive administration and one sees during the last few days the completion of the pattern.

In the past, with one or two exceptions the chief administrator of any gas undertaking was seldom responsible for the control of more than one gas undertaking. In those days the board of directors or gas committee was its own policy-forming body, and the chief administrator largely an individualist in this respect. With nationalisation, however, this position has changed. Grouping, whether it be as we have done it in Wales, or by means of divisions and subdivisions as in some other areas, was inevitable. Thus the need for administrators is greater in our industry today than ever before, in order to ensure that the work, ideas, and experience of the employees and the individual units within a group or division shall be so co-ordinated that they form a co-operative and integrated common effort within the framework of the overall policy of the area board concerned. There have been few opportunities in the past within the gas industry to enable suitable men to receive any special training to prepare them to fill posts of this kind. Management and administration were largely something tacked on to the duties of some professional man, usually the engineer or the secretary; and so, to a large extent, he learned by trial and error, aided to some extent by intuition and experience. In this age of specialisation, however, industry and the nation require that a more definite approach to administrative problems should be made, and it is essential that administrative executives should not be handicapped by lack of knowledge of the general principles involved. The more specialisation one gets at the higher levels of management the more difficult will it be to find men with a natural ability to ensure that degree of co-ordination of the efforts of others, so essential for the successful administrator. The only alternative is to give suitable men the advantage of appropriate available training courses.

A Valuable Experience

So far as I personally am concerned, the Greenlands course has been a most valuable experience. It has enabled me to acquire a better perspective of my own industry in relationship with other large industries and organisations, and with the national position; to increase my own knowledge from the experiences, practices, and ideas of the 59 other representatives of other organisations on the course with me; to contribute to the ideas and knowledge of others out of my own experience. It gave me ample opportunities of expressing our industry's methods, ideals, and obligations, to men who will undoubtedly become increasingly important in their respective spheres. With such increased knowledge and experience, greater confidence is inevitable.

So great is the demand for places for students that admission is only secured after selective interview from nomination. The benefit to be derived from the course depends upon the quality, nature, and experience of the individuals taking it. It requires among other attributes qualities of mental ability and capacity; adaptability of outlook and powers of concentration; the ability to select wisely the essentials from both appropriate reading matter and from verbal expressions of others; a wide experience and physical health. And so I suggest that nominations should only be made after these attributes have been kept in mind. To do otherwise would be most unfair to the individual concerned, to other students, and to the College and its staff. At the same time the possibility of the nominee successfully negotiating the selective interview will be considerably reduced unless nominations are considered as suggested.

The social amenities and accommodation provided are good, but the course is necessarily so intensive and so well organised that a good deal of organisation of one's free time is necessary if one is to take much advantage of the facilities available.

Finally, it is an excellent arrangement for those who are able to adapt themselves to its intensive requirements. If one can do this then it will be found to be training and experience that are bound to affect beneficially one's outlook in all walks of life, social as well as business, with many pleasurable memories and friendships, and a greater confidence in oneself resulting from the accumulated knowledge garnered over the three months of the course.

Glasgow Fuel Efficiency Conference

GAS industry efficiency and competition between gas and electricity were criticised at a conference of the Scottish Fuel Efficiency Committee held at Glasgow on April 22. Mr. J. K. Dickie, Secretary, Institute of Fuel, Scottish Division, said it was vital that there should be one controlling body to integrate fuel usage. It was ludicrous to see competition between the gas and electricity industries and especially to observe the erection of elaborate new showrooms for the sale of uneconomic apparatus. The offer of such appliances on hire-purchase terms seemed in addition to be contrary to the spirit of the Government's call. He urged greater attention to coke processing, to chemical utilisation, and to by-product expansion, even at the expense of exports. Operation on such a basis would offer greater returns.

Dr. Eric Chamberlain, Chief Scientists, Scottish Division, N.C.B., outlined a programme which he believed would yield early and valuable results. He urged the mass production at low cost and mass installation of fires giving an efficiency of 40/50%. He agreed on the need for much more regularity in type and quality of fuel, to allow consistent operation. It was variability in fuel which led to inefficient operation.

He advocated a national certification scheme for firemen to be effective as from 1956; this would save at least a million tons each year alone. The fuel industry required complete integration. Scotland offered ideal conditions for such a scheme in view of the Forth/Clyde Valleys industrial area. He urged continuation of research work on new methods of utilisation such as grids and turbines. Fuel technologists must be used wherever possible in industry and would rapidly repay their adoption.

Sir Andrew Bryan, N.C.B., stressed the value of coal exports as a bargaining counter in international affairs.

AMERICAN SPOTLIGHT

Items of Topical Interest from the Contemporary Technical Press of Canada and the United States

THANKS TO GAS

IT is not often we see an electrical competitor giving thanks for the gas man's service. However, in the present instance it is a real story, well worth telling, and one which does prove that there is a way to get along with those who in one sense are competitors, yet in another sense, real boosters.

It happens, so the story goes, that one of the Ontario Hydro-Electric Commission's departments, made up of some 50 employees, decided to forgo their annual Christmas party and, instead, they contacted the Salvation Army for the name of a poor family whose Christmas they might brighten. On personal investigation they found such a family, a mother and her three children living in a basement.

There appeared to be no facilities for cooking the provided dinner, and failing electric wiring suitable for a hot plate, the Hydro men appealed to the local gas company since there was gas service on the premises. So, without charge, the gas company very gladly co-operated and supplied and installed a second-hand 4-burner gas range which they decided to leave with the family. Suffice to say the Gas Company later received from the Hydro's particular department concerned a most appreciative letter of this fine service. (*Canadian Gas Journal.*)

* * *

GAS COOKING FOR U.N.

POSSIBLY on the theory that the way to a diplomat's heart is via the stomach, the United Nations has opened a modern new kitchen, cafeteria, and dining room equipped to cater for international appetites. The installation covers almost the entire fourth floor of the Secretariat building in New York and is designed to serve up to 4,000 U.N. personnel daily, with as many as 750 at one time.

A vast kitchen covering nearly 9,000 sq. ft. serves the cafeteria as well as the delegates' dining room which holds about 300 persons at one sitting. Head Chef is Mons. Jean Laparcerie, who has been with the U.N. since opening day at Lake Success, and his staff numbers some 80 cooks, bus boys, and other helpers. All meats and baking are done on a huge bank of gas ranges and gas ovens.

Assembly-line efficiency is the order of the day in the cafeteria. A capacity crowd of 100 persons an hour can be served—with no waiting for even such cook-to-order items as lamb chops and omelettes. A crew of 22 waitresses clear away used trays and soiled dishes. The dining room covers almost 3,250 sq. ft. (including the lounge area) and is served by 30 waiters. The entire area is completely air conditioned.

Contrary to expectations in some quarters, the Chef does not specialise in dishes for each national group. That, he remarked, would be 'tres impossible.' So he cooks on a 'somewhat international style'—sufficiently cosmopolitan to embrace a satisfactory array of dishes of foreign origin. (*Gas Age.*)

* * *

ELECTRONIC ACCOUNTING

ELECTRONIC equipment has made it possible to increase speed and accuracy and lower the operational cost of billing and accounting at the Philadelphia Gas Works Company. The change was necessitated by the combined problems of clerical computing and adding 190,000 delayed payment charges, carrying over 130,000 delinquent balances to new bills and adding machine listing of about 1 mill. items.

Every day the individual billing cards for each of the approximately 30,000 meters to be read that day are now sent to the meter reading division. All information needed for proper meter reading is on the card—even to coded data on unusual meter location, dangerous steps, and bad-tempered dogs. The reader records the index by placing pencil strokes in the appropriate spaces on the card.

Cards returned from the meter reading division are run through a reproducing machine that 'reads' the pencil marks and converts them into punched holes. An electronic calculator then subtracts the previous from the current index to compute the gas used, adjusts for C.V., and then applies the rate blocks to arrive at the proper amount of the bills. The cards are subsequently grouped and analysed to accumulate the total amount of gas used and the revenue for each type of sale—residential, heating, commercial or industrial. (*American Gas Journal.*)

* * *

WATER HEATER CONVERSION

AN article in *Gas Age* refers to the big market that exists in converting electric water heaters to gas and shows how easily a gas heater on the 'circulator' principle can be connected up to the electrical heater at a cost of no more than $70 to $90. In this way the consumer does not lose the sizeable investment he has already made in buying the electrical model.

The author points to the fact that electric water heater sales are rising each year and have reached a substantial number. In 1951, a total of 845,000 electrics were sold against 2 mill. gas. But all electric water heater owners are not completely satisfied either with the service they get or the operating cost. These people are prospects, and there are many of them, for a cheap gas conversion unit such as the one described.

GAS FOR HOME HEATING

AMERICANS are keeping the home fires burning differently these days. According to preliminary census figures, there has been a decided shift in type of fuel used for residential heating in the last 10 years.

The Gas Appliance Manufacturers' Association reports that almost 14 homes out of every 100 in the nation are centrally heated by gas. Use of gas for central heating has increased 433%, and in some sections, notably the north east, it has jumped 780%. Occupied dwellings space-heated by gas increased from 2,728,381 to 5,881,000, a gain of 116%.

The future looks bright. Where the fuel is readily available, seven out of 10 of the 800,000 new homes to be constructed during 1952 will be heated by gas. (*A.G.A. Monthly.*)

* * *

SERVICE RESPONSIBILITY

THE Executive Board of American Gas Association has authorised a Committee on Customer Service Responsibility within the gas utility industry to review policies on servicing of gas appliances and on responsibilities of the manufacturer, distributor, dealer, and company. The committee will co-operate with a parallel committee of the Gas Appliance Manufacturers' Association.

Howard B. Noyes, Vice President of the Washington Gas Light Co., will serve as Chairman of the Committee. (*Gas Age.*)

* * *

GAS AIDS CANNING

CANNING fresh milk by a new method of superheating steam with gas is a new process which may soon stir the milk industry to revolutionary changes in its marketing and distribution system.

The procedure, called the Martin aseptic canning process, was developed by Dr. William McK. Martin, of the James Dole Engineering Co., Redwood, Calif. It makes possible plans for canning such things as ripe fruit, fresh vegetables, and other things that formerly required special handling. The process, which will retain the milk's freshness for six to nine months, could open new national and international markets for perishable liquid and semi-liquid foods.

The product, in the new canning operation, is placed in a continuous heat exchanger, where it is sterilised at high temperatures in a matter of seconds. Then it is immediately packed into cans. The packing process is fully enclosed. The filling and sealing of the cans is completed in an atmosphere of gas-superheated steam. (*Gas Age.*)

COMPANY NEWS

Parkinson & Cowan, Ltd.

RECORD TRADING RESULTS

Sir George Jessel's Address

THE 52nd annual general meeting of Parkinson and Cowan, Ltd., was held in London on May 9. Sir George Jessel, BT., M.C. (the Chairman), in the course of his address, said:—

Our accounts for the year ended December 31, 1951, show a consolidated trading profit of £524,054 (£379,748 in 1950). After deduction of depreciation, debenture interest and redemption, income tax and profits tax, we are left with £147,014 (£122,741 in 1950). The substantial increase in trading profit marks a successful year, though we must not forget that in times of rising prices a healthy company's profits expand naturally. We produced more goods per unit of labour employed, we continued at an accelerated pace the re-equipment and improvement of our factories, and we devoted an even larger proportion of our revenue to the research and development of new products which are the lifeblood of our business.

Your Directors recommend that we repeat our distribution of last year by the payment of a 7% ordinary dividend and a 2% bonus. Of the balance of £93,312, we have applied the sum of £50,746 to reduce the goodwill in our consolidated accounts to the round figure of £1,000, which leaves the sum of £42,566 to increase the carry-forward to £193,919.

Elimination of Goodwill

I have referred to our reduction of the consolidated goodwill item to a nominal £1,000. I hope that the stockholders will derive satisfaction from the fact that in 1945 this item stood at £164,000, whereas today our consolidated balance sheet is clear of all intangible encumbrances and shows the finances of our Company in a simple, solid, and in our view, satisfactory condition.

Depreciation

I draw your attention to the heavy depreciation of £114,000 (£93,000 last year) which we have applied to our fixed assets. There is in these days an element of unreality in the application of the word 'depreciation.' The fact is that many of the assets which your Company owns, far from depreciation, have considerably appreciated in recent years and the true value of our fixed assets greatly exceeds the figure shown in our accounts. Against this, in the engineering industry obsolescence is often a more costly factor than depreciation, as the latter term is normally used. We prefer to deal with the whole conundrum of replacement values by the omnibus process of using exceptionally high 'depreciation' rates.

The State of the Company Today

I think that stockholders would be encouraged if they could see all our activities and study our plans for new and improved products. We believe that size for size the versatility of our group is exceptional. In changing times this adaptability is a source of strength to us but, as I have told you in past years, it does create very heavy burdens for our higher management. We are now carrying a large load of production work for the armed forces which, combined with our basic business is keeping our factories fully occupied.

The provisions of the excess profits levy will fall with especial severity upon your Company, as our profits since 1945 have climbed more steeply than the average, but whatever may be the immediate hardships of taxation and market uncertainties your Board feels that our long-term prospects are excellent. We are solidly entrenched in many lines of business in which the longer future appears to us to range upwards. Our managerial and technical staffs, which constitute the foundation of our business, are skilful and determined, our mechanical equipment is modern, and we can look at the future with bright expectations.

The report and accounts were adopted.

The retiring Directors, Sir George Jessel and Mr. R. J. Rogers, were re-elected and the Chairman concluded with a tribute to the Managing Director, Mr. H. P. Barker, and to the staff and workpeople.

WELLINGTON

Addressing the 82nd annual general meeting of the Wellington (N.Z.) Gas Company, Dr. C. Prendergast Knight, the Chairman, said the year 1951 had been one of the most difficult ever experienced by the Company. The strike of watersiders, miners, drivers, and others which started in February and dragged on for five months, soon affected coal supplies, and the Company was in a most serious position throughout the duration of the strike and for some time afterwards. The sales of gas for the year were substantially reduced owing to reduced pressures and other causes. Sales of coke and other residuals were also seriously affected. This caused a reduction of £4,351 in the net profit, as compared with the previous year. The balance brought forward from 1950 was £20,876; to this must be added the net profit of £17,090 for the year 1951, making a total of £37,966, less the interim dividend of 3% on the ordinary shares, and the year's preference dividend of 5%, totalling £12,275, leaving a balance of £25,691 available for distribution. As the fall in revenue was due to extraordinary circumstances the Directors recommend that the usual dividend for the year be provided by paying a final dividend of 3% which will absorb £8,364 and leave a balance of £17,327 to be carried forward. In spite of the loss of sales of gas and residuals, the revenue for the year was £533,846.

MONTEVIDEO GAS AND DRY DOCK

Trading loss of the Montevideo Gas and Dry Dock Co., Ltd., for 1951, after tax, amounted to £34,628, compared with a profit of £53,265 for 1950, exchange loss £39,349 (profit £80,697), net loss for year £73,977 (profit £116,864). Special receipts £9,588 (£11,126), balance available £53,476 (£192,584), loss on sale of investments £757 (nil). To reserves nil (£57,000), dividend nil (5%), forward £52,719 (£117,865).

BRITISH VACUUM CLEANER

Results of the British Vacuum Cleaner and Engineering Co., Ltd., for the year ended September 30, published last month, show consolidated current assets of £1,461,355, against £1,405,130 for the previous year, including debtors and work in progress, less received on account, £665,441 (£677,321) and stock £740,065 (£693,509). Current liabilities and provisions amounted to £930,047 (£978,636).

IMPERIAL CONTINENTAL

A dividend of 10% is announced by the Imperial Continental Gas Association in respect of the year to March 31. For the previous 12 months there was a 9% distribution. Last October there was also paid a special tax-free dividend of 22½% from capital stock premiums reserve. The net profit of £295,108 compares with £271,478 in 1950-51. Results for the past two years are compared was follows:

	Mar. 31, 1951	Mar. 31, 1952
	£	£
Profit, before tax ...	703,315	783,603
Deduct U.K. tax ...	431,837	488,495
Net profit	271,478	295,108
Dividend	264,600	294,000
Leaving	6,878	1,108
Brought in	174,945	181,823
Trans. of cap. stk. premiums ...	—	1,277,589
Balance	181,823	1,460,520
Deduct special 22½% tax-free dividend paid Oct. 1, 1951	—	1,260,000
Profits tax on dist....	—	68,619
Forward	181,823	131,901

'HUMANICS' IN THE GAS INDUSTRY*

By A. McDONALD, B.Sc., A.R.T.C., A.R.I.C., M.Inst.Gas E. M.Inst.F.

Member, North Eastern Gas Board

I PROPOSE to speak to you today on what I have called '"Humanics" in the Gas Industry.' Surely we have here a tremendous subject embracing as it does almost every human activity in our working life. Doubtless, therefore, you will understand why I approach my task with a good deal of trepidation.

My difficulties are enhanced by the fact that this is a technical organisation and it has been usual in the past to deal with purely technical subjects. Unless, however, the technologist is prepared to make the best use of the men who actually carry out the work, he can never hope to reach that high degree of practical efficiency for which he is continually striving.

I take comfort, therefore, from the knowledge that each and every one of you is to a greater or lesser degree directly affected by this subject in your everyday duties. I cannot hope to cover the whole subject indicated in my title, but if I can give sufficient to enable you to improve, even in the smallest degree, the practical efficiency of our industry, then my purpose has been served.

The Gas Engineer

Few of those present today will deny that the gas engineer combines the skill of the engineer and the ability of the chemist. Thus the design, construction, and maintenance of the plant is the function of the engineer, while the function of the chemist is to control the actual process of carbonisation and purification. The care and energy expended in these two aspects of the industry are a measure of the importance attached to them.

The professional gas engineer then must be an appropriate blend of these two professions, and it does not need me to tell you the amount of work and study required to reach that status. It is true that in these days with the grouping of undertakings, etc., there is perhaps a demand for the specialist who concentrates on one particular branch of the industry, but it is just as true that there is also, and always will be, a demand for the 'gas engineer and manager' in the broadest possible sense.

Thus we all know that once we have qualified professionally we must acquire knowledge and experience far outside the two I have mentioned if we are to come within this latter category. For this reason I now propose to deal with one of these aspects in particular.

Importance of Human Beings

I have already stated that each of us is continually striving after practical efficiency, but to obtain that efficiency we must use human beings to carry out the actual work. I want to suggest that here we have one factor which is just as important as any other single factor in the whole of the industry.

We have at our disposal methods of appraising the mechanical efficiency of plant, the thermal efficiency of the process, and even means of judging the financial result, but when it comes to a consideration of the men who carry out the work, we have no yardstick.

* Chairman's Address to the Manchester and District Section of the Institution of Gas Engineers, April 25, 1952.

Let us see just how important this question really is. Table 1 sets out the numbers and categories of the various employees in the North Eastern Gas Board as at March, 1951.

TABLE 1

Works and Plant—Retort House	1,308	
Others	2,266	
Transport	279	
Meter Readers and Collectors	465	
Gasfitters, Plumbers, and Service Layers	923	
Others	1,607	
		6,848
Administrative, Technical, and Clerical		1,761
		8,609
Total persons employed		

Here then we have a considerable body of employees who are dependent on the industry for their livelihood, and for the well-being and happiness of their families. Towards this end I find that the payments made to or on behalf of these employees represented no less a sum than £3,452,014 in the financial year ended March, 1951.

When we note that the total employees in the industry according to the Gas Council report is 143,506, then we can calculate that the total amount paid in wages, salaries, etc., is in the region of, say, £58 mill. per annum.

This figure, which is still continuing to grow owing to the ever increasing wage rates, gives us some idea of the magnitude of the aspect we are studying. Even this does not give us the whole story, as an analysis of the income and expenditure of the North Eastern Gas Board for the same period will show.

TABLE 2
ANALYSIS OF INCOME AND EXPENDITURE
NORTH EASTERN GAS BOARD

Income		*Expenditure*	
Gas	60%	Coal	35%
By-Products	25%	Salaries, Wages, etc. ...	28%
Sale of Appliances ...	12%	Materials and Services ...	17%
Sundry	3%	Capital Charges ...	9%
		Oil, Coke, etc. ...	7%
		Gas Purchased	2%
		Rates	2%
	100%		100%

From Table 2 we see that salaries, wages, etc., represent some 28% of our expenditure and are in fact the second largest item. Apart, therefore, from any other consideration, our employees draw a very substantial sum in salaries and wages, etc., which represents almost one-third of our total expenditure.

Who among us today would neglect the careful selection of plant and machinery? Who among us would neglect the maintenance of that plant or the oiling of that machinery once it is installed? In view of the annual cost involved it behoves us, therefore, to take just as much trouble in selecting and looking after the personnel within the industry. Unless we do so we can never hope to attain that high level of technical attainment essential for the well-being of the industry.

Obligation of the Gas Engineer

It will be recalled that those responsible for the Gas Act had some appreciation of the importance of our subject when they imposed on the Gas Council and on the area boards specific obligations:—

(a) To set up machinery for settling terms and conditions of employment;

(b) To make provision for advancing the skill of persons employed by them; and

(c) To provide for the promotion of safety, health, and welfare of employees.

It may be that these provisions were included for reasons entirely different from those already discussed. Nevertheless, it is an indication of the increasing importance which is placed on the men and women who carry out the everyday duties.

Whatever stress we have formerly laid on the training of a gas engineer, it is apparent that all who aspire to any form of managerial function must be prepared to add a third accomplishment after he has completed his professional training—namely, that of being able to handle men and train them for the duties they are to carry out. Although it is an obligation of the Gas Council and the area boards to make the provisions which I have mentioned, it is the gas engineer who has to put them into operation, and therefore it becomes a delegated obligation on him, as it is he who will use these provisions as tools to obtain better results.

Social Revolution in Industry

Having considered the importance of the human beings in the industry and the obligations which now rest on the gas engineer, it is necessary to consider how he can carry out this part of his duties. Before doing so I would like to draw your attention to what I suggest has been something of a social revolution during the last 10 or 15 years.

Enormous changes have taken place in the atmosphere and practices which were in existence, in that every section which constitutes human or industrial relations has now become a matter of joint consultation or negotiation. Consequently the gas engineer must acquire a new outlook and accommodate himself to these changes, even if it does involve an extension of the time which must be devoted to this aspect of industry.

Terms and Conditions of Employment

(*a*) *Partnership*

I do not propose to deal with the actual terms and conditions which have been negotiated since vesting day. Suffice it to state that a vast amount of work has been done and machinery is operating for all classes of employee.

It has been the gas engineer's lot to assimilate and interpret correctly each of the numerous agreements which has been negotiated. Not least, it has been his duty to apply them with a sympathetic understanding of the needs of the industry. In spite of all that has been done since May 1, 1949, one is not unconscious of the fact that much remains to be done. One is even aware that many individuals feel that their particular problems remain unsolved. The hard fact remains that the foundations have been laid, the machinery is in place, and production is already proceeding—no mean achievement in the comparatively short period of nationalisation.

The point I am leading up to is simply this—that everything which has been done in this sphere is the result of the joint efforts of management and unions. In other words, the employees have become partners in the industry with all that that involves. The employers, whoever they are, cannot dictate terms, and the unions must accept their share of the responsibility which partnership places on their shoulders.

And here I want to suggest that there is a third partner, and one who is no longer a sleeping partner, but who takes an active interest in the industry through the consultative councils. I refer, of course, to the consumer.

It must be evident that if any one partner does not accept his full share of responsibility he only does so at the expense of the other two. Thus the technologist must play his part in effecting savings, but if these savings are dissipated by the employees, then the consumer does not obtain his rightful share.

In brief I suggest that the employers and the employees must strive together to suffuse into the industry that dynamic energy which benefits every one of the partners—employers, employees, and consumers. The consumers in their turn will doubtless give the reward of increasing consumption, which again will breathe into the industry fresh effort.

(*b*) *Leadership*

A major problem at any time is to ensure that the right type of man is in the right place. The right type of man is one who not only knows his job but can inspire confidence in others and has the quality of leadership. By leadership I do not mean the old dictatorial attitude whereby blind obedience to an instruction was the essential qualification for the majority of employees. That qualification is a thing of the past, and it is well that it should be so. Unfortunately, intelligent obedience or co-operation has not yet taken its place, and until it does so, leadership in its true sense will be the feature most necessary to all those who aspire to rise within the industry.

It does not matter how progressive an area board is, it can achieve little if its officials—and I include foremen in this category—do not inspire confidence in the general body of employees. These men are in constant contact with the employees, they put the board's policy into operation, they give the instructions and see them carried out.

Too often this is a weak link in the chain and the root of many misunderstandings. Either they will not accept their proper responsibility, or they are harsh and unjust. They do not always look for the intention behind an agreement or policy, but try to read into the wording what they think should be there. They seldom take the trouble to explain exactly what is to be done and why it is to be done before putting it into operation.

If, then, we are to have the right type of man in the right place we are faced with two problems—selection and training. Greater care in selection than we at present exercise must be utilised if we are to obtain the best men, and ability should be the deciding factor, combined with a real interest in the job. We must have a clear understanding of what we mean by ability, which I suggest must include personality, energy, ideas, results in present appointment, together with the essential factors of leadership and a knowledge of the job.

The question of selection, of course, includes the problems of promotion. Naturally in industry one job is considered to be more important than another and accordingly receives a higher remuneration. Just as naturally each employee considers he has a claim to the higher reward. Seniority or long service has frequently been advocated as the arbiter of promotion, but this can mean selecting the wrong man. I agree wholeheartedly with promoting our own employees, and in fact the principle of giving our own employees the first opportunity has been adopted by my Board; but I suggest that unless we are satisfied we are selecting the right man for the job then we should go out into the wider field of our own industry and, if necessary, outside the industry altogether.

If recognition must be given for good solid service over a lengthy period, then this should be done by some other method, rather than placing the wrong man in a job.

Specialists in Industrial Relations

From what I have already said it is apparent that what has been called industrial relations has become not only technical but so complicated that specialists, frequently with assistants, are necessary. Such appointments in no way detract from the responsibilities of the gas engineer, but in fact open up to him a means of widening his opportunities, so that he can use his time beneficially in the other multitudinous spheres of activity.

Such an officer can be of the greatest assistance to any engineer in that, through his detailed knowledge of agreements and

working conditions, he can ensure economy in expenditure, promote efficiency, and improve relationships. It is his duty to co-operate with other officials in obtaining uniformity of procedure, in preparing schemes of recruitment and training, compiling adequate records, keeping other officials fully informed on salary, service conditions, and the correct interpretation of agreements. He must have both tact and firmness, a proper understanding of human beings, and a sense of proportion.

You may claim that such a list of qualifications cannot be achieved by one man, but such a list is not really exhaustive. If, then, we have been successful in appointing the right man as an industrial relations officer, the gas engineer will find him of inestimable value in relieving him of much of the detail work connected with this subject. I suggest that we would be well advised to make full use of him.

Training and Education

Having referred to the problem of selecting the right man for the job it is necessary to turn to the problem of training him. It has been said that leaders are born and not made. I do not necessarily agree with that, but what I do say is that any man will be a better leader if he is properly trained.

As far as my Board is concerned we regard it as an essential feature to assist all employees to further their knowledge and experience in order to fit themselves for positions of greater responsibility. Towards this end we have, in common with other boards, inaugurated schemes of training which cover a fairly wide field, and in which daytime release is available. In addition we have agreed to run a number of refresher and specialist classes on the Board's premises and during working hours.

It is realised that a good deal of time can be taken up on training and that this involves an apparent loss of working time when there is a shortage of all classes of employee. On the other hand, well trained and enthusiastic employees are essential to the industry. Taking the long-term view then, a very substantial return can be obtained by sacrificing a little time at present.

There is no doubt that technical progress has improved working conditions but, unfortunately, mechanical production has largely replaced the old type of employee and has frequently destroyed those loyalties which meant so much both to the individual and to the employer. If we can re-establish a community of interest and mutual confidence, then we can escape many of the misunderstandings which continually retard the operation of that partnership to which I have already referred. One answer to this problem lies in a continual process of further education.

If this process is to have any hope of success it is essential that the gas engineer should be convinced of the necessity for this type of training, and he must decide just how much importance to attach to it. We all know that at the present time the engineer is harassed as to how he is to get through all the work he has to do with the men available, or how to increase production. The easy answer, of course, is to increase the number of employees or, alternatively, to work overtime, but both these methods are fallacious in that we have not necessarily increased efficiency and, in any case, the latter method will lead to discontented employees when the time comes to return to normal working hours.

The real answer is to sacrifice a little time in training all employees to do their work efficiently and enthusiastically, and unless the engineer is convinced of the value of such schemes then there will inevitably be a clash between him and the education officer—where boards have made such appointments—who seeks to recruit young people on one day per week for further education.

The North Eastern Gas Board at least is convinced as to the value of this class training and has prepared a complete programme which is capable of extension or modification to meet circumstances.

I do not propose to review the Institution's Education Schemes, as these should be reasonably well known to those present today. Suffice it to say that without doubt the gas industry will make full use of the knowledge and experience which the Institution has accumulated over a period of many years. The Institution has for long been the examining body and the arbiter of the standard for professional examinations, and must continue to be so. The Gas Act, however, places a wider responsibility on the Gas Council and on the area boards in that they are required to make provision for the advancement of the skill of all employees. The provisions made by the Institution and by the area boards are consequently complementary. I propose, therefore, to put before you some of the methods which we are adopting to advance the principles of education and training.

(a) Instructors

First of all it was appreciated that, while colleges are in a position to provide teachers for subjects which are common to a number of industries, there are difficulties in providing teachers in specialised subjects such as gas engineering, gas distribution, gas fitting, and so on. Consequently it is necessary for the industry to provide these specialist instructors. A number of officials throughout the area have been fulfilling this function for many years, but it is recognised that while these officials are specialists in their own jobs, they are not necessarily qualified teachers.

Accordingly the Board realised the value of the Short Course for Teachers organised by the Ministry of Education and decided to take advantage of this. In 1950 five employees attended this course, and in 1951 a further six employees attended a similar course. It is intended to continue this procedure and so provide a sufficient 'pool' to meet the requirements of the area and ensure adequate instruction, both for the Institution's requirements and for other qualifications.

(b) Education Facilities

Following this it was necessary, in common with other area boards, to provide facilities for the students to attend recognised courses of instruction. As you are aware, employees attending these approved courses are granted one day off per week and are expected to attend on two evenings per week. Tuition fees, examination fees, and travelling expenses are paid by the Board if the student fulfils certain conditions and in addition reasonable time off is allowed for travelling to classes.

Correspondence courses are not encouraged, but in our scattered area it is not always possible to obtain classes appropriate to a particular course of study without extensive travelling. It is considered that in such cases the value of the class may be lost, and the Board has approved individual cases, refunding the cost to the student, subject to satisfactory progress.

This scheme was introduced in time for the 1950-51 session, and even though there was little opportunity for publicity there was a material increase in the numbers attending classes. The appropriate figures are set out in Table 3.

TABLE 3

	1949-50	1950-51
Gas fitting and technological courses	182	224
Gas engineering and other technical courses	96	156
Administrative, commercial, and accountancy courses ...	50	90
Miscellaneous courses	35	33
Salesmanship courses	17	24
Total students	380	527

The cost of this scheme to the Board was just under £3,500 and worked out at £6 9s. 10d. per student on the average, which includes lost working time. It is interesting to note that of the 8,609 employees within the Board, just over 6% were granted these facilities.

A complete record of each student is maintained from which progress can be watched and facilities for further studies granted or refused. It is available when promotion is under consideration.

(c) Pupilage Scheme

As recommended by the Gas Council's Advisory Committee on Education and Training, we have adopted pupilage schemes

for (a) personnel recruited from the universities, and (b) personnel recruited direct from school, and details are being worked out to give these employees suitable training in the various departments, co-ordinating this training with their studies. This scheme will apply in all spheres of activity from gas fitting and other apprentice craftsmen, right through to the technical student and office staff, so that the best employees will be encouraged to pass on from craft to technical and administrative schemes, and promotion from the lowest to the highest grades will be possible.

(d) Internal Training

It was early realised that what has already been described was insufficient to provide for specialist and refresher classes which are not readily available from the recognised colleges. No facilities were available within our area of a similar nature to the Watson House Training Centre, and to use this Centre for large numbers of employees would involve the Board in excessive expenditure on travelling and maintenance costs.

It was therefore decided to send a number of 'key' employees to Watson House courses, which employees would later be trained as instructors for other employees, if they satisfactorily completed the course. During 1951, therefore, 35 employees received this training at a total cost of slightly less than £1,000, or an average of £27 5s. 2d. per employee. Although all these employees did not prove to be satisfactory instructors, careful selection has ensured encouraging results and the process is being continued in 1952 in order to build up a satisfactory 'pool.'

At the same time the Board accepted a proposal that Training Within Industry (T.W.I.) should be included in this scheme of specialist and refresher classes. For this purpose employees were trained by the Ministry of Labour to act as instructors in the three sections of the scheme—namely, job instruction, job relations, and job methods. As soon as instructors became available, refresher, specialist, and T.W.I. courses were set up. For this purpose employees are released for one day per week over a period which may vary from five weeks to 20 weeks, depending on the particular subject. In general the refresher courses, which are of fairly wide application, are held locally and instructors are trained for each group. On the other hand the specialist courses, which are of more limited application, are held at Head Office.

Each class is limited to 10 men and, although this restricts the number of employees which can be dealt with in any given period, it ensures more individual attention. In all, some 15 courses are available for the first session which involves some 50 classes on the various subjects, and approximately 480 employees can receive training. Although no precise costs are yet available it is estimated that the average cost for each employee receiving instruction will be approximately £12.

(e) Mainlaying Course

Special mention should be made of a mainlaying course which has been organised within our area. The greater proportion of the ganger-mainlayers and mainlayers throughout the Board's area has been recruited from labourers and cannot be regarded as craftsmen, not having had the opportunity of serving an apprenticeship. The Board, realising the importance of the work which these men carry out, has agreed that they should have the opportunity of special training and has accordingly granted facilities for the setting up of a mainlaying course. In this case each employee is released for a period of two weeks, during which he receives 70 hours' instruction, mainly of a practical character. Each class consists of six men and is held locally, thus avoiding travelling.

It was found that no suitable text-book material was available for this purpose, and consequently the distribution engineers, under the supervision of the Chief Engineer, have prepared the necessary course. During the first year of this course 126 employees will be trained and, again, no precise costs are yet available, but it is estimated that the average cost will be £18 per man.

While it has been impossible to give precise details of all that has been done within our area on the aspect of training and education, it will be seen that passing on from the selection of the individual for any particular job, the Board proceeded to train employees who would be available as instructors and to provide facilities for employees to receive training and education. It is now in a position to run its own internal classes in a variety of specialist and refresher subjects. By this means the Board hopes not only to have well trained and efficient employees, but to give every employee the opportunity of advancement.

Safety, Health, and Welfare

Now to devote a few moments to the third aspect of the obligations imposed upon us. The adoption of joint consultative committees is on the whole something new in the gas industry and safety, health, and welfare have been included in the functions of these committees, as no doubt you are all aware. When one adds to this the prevention or removal of causes of friction, which is also part of the Constitution, then they become of such importance that it is our duty to make a success of them. Here again, although the area Board may give every facility and encouragement it is the gas engineer, as representing the board, who must create the right atmosphere and bring out the best that is in them. Many of us have little or no experience in this type of work and it is only our research into the working of similar committees which can guide us. Reports vary widely as to their value, but it would appear that their effectiveness depends largely on how they are organised. That being so, how do we propose to run these committees and what do we expect to get from them?

(a) Setting up Joint Consultative Committees

For organisational purposes the North Eastern Gas Board divided its area into six groups. After discussion with the unions concerned it was agreed that there should be two committees in each group—one for staff and one for manual workers—thus making 12 committees in all. The actual size of each committee varies, depending on the total number of employees in the group, but each staff member represents on the average 45 employees, and each manual member 125 employees. In no case does the number of employee representatives exceed 10.

The elections were planned so that the large works could not out-vote the small works. Several small works were brought together to elect their representative and the large works were divided into departments for election purposes. By this means every class of employee is duly represented on the committee.

Having formed the committee, a number of suggestions were made at the first meeting and after a full discussion these suggestions were generally approved. As an instance of this, it was realised that a committee can simply degenerate into a means of voicing complaints. In order to avoid this, members have agreed that local officials must not be by-passed and that any complaint must have been dealt with by the local management before being brought to the committee. This is in keeping with the general policy of decentralising as much as possible and the effect will be to save the time of the committee and allow it to carry out its true function.

It was made abundantly clear to each committee that it cannot usurp the function either of the Board or of the Joint Council. In the former case the Board alone can decide policy or authorise expenditure, and should the committees be considering any problem which is affected by either of these aspects then all they can do is to make a recommendation. The Board will listen to what they have to say, but the final decision must lie with the Board. In the latter case the Joint Council is the only body competent to deal with wages, salaries, and conditions of service, and while the Board's representatives may give explanations as to the workings of these in order to prevent or remove causes of friction, the committee has no power to discuss them.

Each committee has agreed that due notice should be given to the secretary of any item which it is desired should be

(Concluded on p. 387)

LAMENTABLE SALARIES FOR QUALIFIED MEN

By J. E. WAKEFORD, M.B.E., M.Inst.Gas E.
Divisional General Manager, Birmingham and District Division, West Midlands Gas Board

Chairman's Address to the Midland Section, Institution of Gas Engineers, April 25, 1952

LOOKING back over more than a quarter of a century in the gas industry and more than 20 years as a Corporate Member of the Institution, I feel that vocal expression of individual ideas and outlook which existed in the past is tending to disappear today. There were, prior to nationalisation, over 1,000 undertakings, the management of each of which held its own views on commercial, technical and engineering problems. This fact produced a healthy diversity of opinion which brought into being at section meetings vital discussion. Let me say forthwith that nationalisation of our industry must not be held to blame for the change but, on the other hand, it may be that members now are sometimes a little reluctant to express views which are contrary to current practice in the industry as a whole or opposed to that of their own board in particular. As members of a professional Institution, we shall make little progress if the practice at district meetings is to pat each other on the back and say how right we are.

Gas Production

We are faced as a nation—at present and for many years to come—with an acute shortage of coal production and even in that shortage a dire need for export. This in itself will limit the coal available to the gas industry, and it may well be that the 26 mill. tons of coal carbonised in the gas industry last year will be a limit of availability for some time to come. Further difficulties which we have to face are the labour shortage, a shortage of steel, and the limitations on capital expenditure.

All these factors, in my opinion, demand under present known methods of gas production a far greater use of water gas as base load with enrichment by heavy oil as practised in the States for many years. I do not put it beyond the bounds of probability that research will find a method of blue water gas enrichment with our own by-product—tar—that is, the 20 to 25 liquid therms from each ton of coal which are sold today for something of the order of 4d. a therm.

Gas Charges

For 30 years prior to nationalisation the gas industry was actively pleading for a revision in legislation which would, apart from meter rents, enable an undertaking to demand a fair contribution from every consumer to cover standing charges. Legislation gave this right to the electricity industry but never was this freedom bestowed upon the gas industry until the advent of nationalisation.

A select committee on gas charges was set up by the National Gas Council in 1925, under the Chairmanship of Mr. C. F. Botley. The main recommendations of that committee were that gas undertakings should be authorised to adopt more equitable systems of charging with a view to ensuring, so far as possible, that no customer should receive a supply of gas at a price lower than the cost of furnishing such supply. It was indicated that this could be achieved, subject to the necessary legislation in the case of domestic consumers, by the introduction of a two-part tariff (a service charge covering standing charges which have to be met regardless of consumption, and a commodity charge covering all costs in connection with manufacture and distribution) or a block system of charge.

Generally speaking, the block system has been adopted up and down the country but scarcely with that courage which was envisaged in the report on gas charges. In an average undertaking, I do not think that I should be far from correct in assessing the domestic consumers' standing charge today at something of the order of 56s. per annum and representing perhaps approximately one-sixth of the total income from gas sales.

In the block system, if these standing charges are to be adequately recouped, it is necessary for them to be spread over a small first block of, say, 15 therms per quarter, which would mean that the price of gas in this first block would be the true commodity charge plus 1s. per therm, and by this means would permit additional consumption to be charged at a fair price for the commodity instead of others having to bear, as today, the losses created by the unremunerative consumer.

It is, I think, a great pity that the recommendations have been adopted to such a slight degree as without a doubt, if all bore an equitable share of standing charges, the price of the commodity could be reduced by pence per therm and so enable gas to compete much more fairly in the open market.

Gas and Electricity

In considering from a national angle gas and electricity, it is, I think, desirable to do so from three major standpoints—(a) Coal requirements; (b) Capital expenditure; (c) Labour needs.

(a) The overall thermal efficiency of electrical generation for the year ended March 31, 1951, was 21.54%, which is equivalent to 1.6 lb. of coal per unit of electricity produced which for comparison, in gas industry reckoning, equals 46.5 lb. per therm. We, in our industry, produce on the average 72 therms per ton which represents 32 lb. of coal per therm of gas, but against this must be offset in solid fuel alone the coke and breeze made available for sale which represents 14 lb. per therm of coal gas made. The true comparison, therefore, becomes 46.5 lb. of coal for every therm of electricity against 18 lb. of solid fuel for each therm of town gas; thus, the quantity of fuel used for electricity generation is 2½ times as great as that for gas heat for heat. In addition, for each ton of coal, we produce some 25 therms in the form of crude tar which, in turn makes available refined tar, pitch, creosote, naphtha, tar acids, etc.

(b) The capital cost of power station projects based at price levels ruling in the autumn, 1950, was £50 per kW installed which, coupled with the average load per kW of maximum output capacity, at present 47%, represents 10.3 kW sent out per 24 hours per kW installed, that is, a capital cost of approximately £150 per therm of electricity per day.

As a comparison, in the gas industry we can take £250,000 per mill. as probable capital costs of a large gasworks today, which is equivalent to £50 per therm per day. Taking a 70% average load factor of gas production, we then find that comparative capital costs per therm of gas and electricity sent out from the production stations is £70 gas and £150 electricity. In other words, capital costs for electricity are twice as great.

I am not in a position to assess what this additional capital expenditure means in terms of additional man power or in steel requirements, but taking 1950/1951 figures of capital expenditure approved for the electricity industry for production plant at £85 mill., the same thermal output could be achieved from our own industry at a cost of under £40 mill.

As an example of capital costs on the distribution side, we find that even on large housing estates the costs of electrical mains and services are working out at £50 a house as com-

pared to our own figure of £20/£25. I sometimes wonder in regard to the policy of mains and services to new houses if, instead of providing these free of cost in the sure hope, but only hope, that gas appliances may be installed, it would not be better to let such charge fall on the builders on the understanding that gas appliances equivalent to the builders' expenditure on mains and services would be made available free of cost to each house so serviced. This would at least be a means of ensuring a fair return in gas consumption on our outlay.

(c) The total man power employed in the electricity industry production and distribution is 176,000 while in the gas industry it is 143,000. The total thermal output of electricity is 1,900 mill. therms and of gas 2,700 mill. therms. These figures show a man power requirement in the electricity industry of one man per 11,000 therms sent out as against gas—one man per 18,000 therms. In the latter instance, this ignores the large thermal production of coke and tar made available for sale.

For many purposes gas cannot take the place of electricity but for the majority of industrial heat treatment purposes, together with space heating and cooking, gas is the fuel on tap which, from the national angle alone, can make a great contribution to present problems of shortage of fuel, capital, man power, and steel. Industrial and domestic consumers represent some 75% of the total sales of electricity and if we were to assume that only one-third of these consumers' loads is for heating and cooking purposes, this would represent 11,500 mill. kW per annum, which, if replaced by gas, would effect a saving in solid fuel of 5 mill. tons a year.

The average price received for gas per therm during the 12 months ended March 31, 1951, was 13d. for the country as a whole as compared with 1.2d. per unit or 36d. per therm for electricity over the same period. We realise more and more the real need for a sound fuel and power policy, and it is hoped that it will not be long before the committee set up under the chairmanship of Viscount Ridley in July last, presents its report on this vital subject.

Education and Recruitment

It is the duty of every area board to make provision for advancing the skill of persons employed by them, including facilities for training and education. In this connection the closest liaison exists between the Gas Council and our Institution and some excellent results have already been achieved. Concurrent with increasing membership of the Institution, it is, I think, noteworthy that the prestige of the Institution has steadily advanced, but much useful work can still be done.

Advertisements appear occasionally in the Technical Press for responsible officials which tend to exclude members of the Institution unless additional qualifications are possessed. Why, I ask, when a man has definitely mapped out for himself a gas engineering career, should it be necessary to hold two or more qualifications. Why not strive to develop still further our own Institution, widen, if necessary, the scope of its examinations until such examinations are recognised as the only really vital qualification for the gas engineer to hold. We can do a considerable amount individually to make the examination of this Institution the qualification par excellence for the gas engineer but, on the other hand, a great deal rests with the area boards. I emphasise that the examinations held by our own Institution are in their range of subjects more adapted to the needs of the industry than those of any other institution and that the papers submitted by our members are written by practical men and deal with actual problems which concern us in our daily work.

We hear from time to time questioning as to the value of examinations as a whole and sometimes of the Institution's examinations in particular. We are sometimes told they are no real tests of a man's ability; we have heard of the man who has every conceivable qualification and certificate but falls down when it comes to doing a job of work, and we have heard of the man who has failed the Institution's examinations many times but has yet taken, and with conspicuous success filled, an important post. What one must remember is that these cases are outstanding exceptions and cannot form the basis of any argument. A small minority of men are good examinees but bad practitioners while another tiny percentage, all honour to them, are hopeless in the examination hall but highly successful engineers. The fact remains that for the vast majority of men examinations, and the Institution examinations in particular, constitute a fair and necessary method of testing a man's fitness to do his job as an officer of an area board.

Having regard to the excellent work which is being carried on by the Institution, and with the encouragement of the Gas Council, it is, I think, extremely discouraging to note the lamentable salaries which are frequently offered in the Technical Press for qualified men for responsible positions. In 1941, the Institution took steps, in conjunction with the National Gas Council, to safeguard the interests of its members in this respect and drew up a recommended scale of minimum commencing salaries for chief engineers and chief assistant engineers of various sized gas undertakings with annual outputs of up to 1,000 mill. cu.ft. The minimum scale of salaries was issued by the National Gas Council and made provision that such salaries were based on cost of living in 1939 and should be adequately increased to cover additional duties such as those of general manager or secretary.

It is, I think, correct to say that several members of the Gas Council and area boards today were parties to the recommendations of 1941 as members of the Council of the Institution of Gas Engineers or of the Central Executive Board of the National Gas Council. Had these scales been used as a basis for engineering appointments in our nationalised industry, then I believe there would be little to fear as to recruitment of the right type of man, but under present salary circumstances as revealed in the Technical Press from time to time, I feel that whatever is done by the Gas Council or the area boards in the form of recruitment, training, and education, the industry is most unlikely to attract, or to retain, men of high calibre.

Gas engineers are specialists in an industry where today there is, in fact, only one employer—an industry from which there is no escape. It is unlike civil engineering, mechanical engineering, chemical engineering, or even electrical engineering, in that if persons so employed feel that they are not making headway or that financial recognition is unsatisfactory, there are other avenues of employment; outside the gas industry there is little scope for the qualified gas engineer and for this reason the new entrants must be doubly satisfied as to the attractiveness of our industry.

The work of the gas engineer is increasing in importance and scope and is demanding far greater knowledge, better training, and wider experience. It is only reasonable to expect that the better a man's professional equipment, the higher should be his remuneration. All along the line by training, by examination, and by the spreading of professional knowledge, we are trying to fit the man for the job, and it is, I think, a natural corollary of this work that we should try to fit the job for the man or otherwise he will not be interested.

My observations in this matter are made in no critical spirit but rather from a motive of genuine goodwill and helpfulness to the industry of which we are all a part.

Statutory Obligations

It seems paradoxical that while every area board has a statutory obligation under the 1948 Gas Act to develop and maintain an efficient, co-ordinated, and economical system of gas supply there would then appear to be a legal conspiracy by local Acts, statutory instruments and the like to make such achievement nigh impossible. Those who have been faced with putting forward schemes for new manufacturing stations have met hurdle after hurdle—local planning permission, regional physical planning committee, Fine Arts Commission, National Coal Board, effluents disposal—these are only a few of the stumbling blocks which have to be overcome to stand

any chance at all of doing that which the board has a bounden duty to perform and for which penalties are laid down for non-fulfilment. Surely something can be done at top level to make this path just a little easier.

I should like to refer to the Benevolent Fund of the Institution. As an Institution we have set before us the ideals of advancement and the mutual exchange of professional knowledge. We are proud to think that in any technical difficulty that may confront us as individual members, we can always rely upon the willing help of our fellow members who, without regard to selfish considerations, will place their knowledge and experience at our disposal. If this ideal of fellowship is to be effectively realised, a definite and important part must be our regard for those who have met misfortune and this regard translated into practical effort must inevitably be the real test of loyalty to the Institution and its ideal. It is only necessary to contemplate the crafts, societies, and organisations who are influential and powerful to be at once struck by their charitable activities.

Almost 20 years ago, the Institution, with a membership of 1,585, over 900—almost 60%—subscribed some £800 a year to our Benevolent Fund. Today, with a membership almost double, we have only 1,460 subscribers, less than 50% of full membership, contributing some £1,500 a year. Thus, with money at much less than half its previous purchasing power, the assistance rendered by our Benevolent Fund falls sadly short of that required and can only be considered as a grant in aid instead of as we all earnestly desire, a reasonably adequate provision for the dependents of late members who have been left unprovided for.

I make no apology for appealing to every member to support me during my year of office in securing from this Section at any rate a more generous response for the extension of the Fund and the quickening of the feeling of mutual fellowship and aid which perhaps, above all things, the giving of a contribution to help others, secures. During my year of office, I am going to ask that when we meet on occasions such as this and particularly when hospitality is extended to us in this generous way, we, as members of the Section, should show a token of appreciation by a contribution to a collection for the Benevolent Fund and the amount collected will be announced before the close of each meeting.

It is not beyond the bounds of possibility that a much closer co-ordination of the sales and distribution of gas and electricity will be brought into operation in the near future despite whatever may be our views on this subject. Further I feel that a code of practice as to the utilisation of coal, coke, gas, or electricity is soon bound to be adopted which will determine, under varying circumstances, which type of fuel is to be utilised.

Three vital pre-requisites to the success and development of the gas Industry are, firstly, the continued well-being of our Institution without which the Industry would rapidly decline; secondly, it is essential that such opportunities are offered to staff as will attract the best possible brains from secondary schools, public schools, and universities alike (this, I submit, will mean real competition with private industry); thirdly, the adoption of a realistic and rational national fuel policy designed to conserve our coal resources.

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placed on the agenda. The secretary will then circulate all the available information in order that each member can come to the meeting fully prepared to discuss it. The minutes of all meetings are, of course, available to all employees, but representatives have agreed to keep their fellow employees accurately informed as to the reasons for any particular decision, in order to foster greater confidence in the committee than might otherwise be the case.

It will be appreciated that with 12 committees a problem could arise at any one of them which might affect the whole area, or a suggestion could be made which would be of benefit to all. Accordingly, to obtain that degree of liaison which is necessary, the Industrial Relations Officer sits on all committees and can ensure that any item of importance is passed to each committee.

(b) Expectations from Joint Consultative Committees

We believe that these committees can serve a very useful purpose, if properly handled, in that they will give the representatives an opportunity of expressing themselves, and can even be a training ground whereby the management can observe the progress of the representatives, thus providing some assistance in the selection of employees for promotion.

The election of employee representatives and the appointment of management representatives tends to give the impression that there are two sides on these committees, but we are endeavouring to eliminate this idea and cultivate the feeling that each committee is a single entity with the object of encouraging members to take the broad view. Members will naturally look after the interests of those who elected them, but they should try to avoid being parochial and should consider each problem in the interests not only of the employees but of the consumers and of the Board.

Undoubtedly a good deal of information, not otherwise easily available to the Board, can be obtained by allowing employees to express themselves as to the attitude of their fellow employees and of consumers. This information can assist the Board in many ways and can even help in the formation of policy. It is the intention in our area to give these committees available information from the Board, so that they can absorb the whole background of the Board, even to the length of inviting discussion on the annual report. In short, we have a ready means of adopting two-way information—from the Board to the employees, and from the employees to the Board.

We do not expect immediate results, nor do we expect too much too quickly, but if the atmosphere of the meetings can be kept reasonably informal then we do anticipate that in time we can hope for an improvement in the relationship between management and employees. When that time arrives, these joint consultative committees will have served their purpose.

Conclusion

Well, gentlemen, perhaps I have spoken for longer than you wish to listen to me, although much that I might have said remains unsaid. I have said nothing about the output per man which means so much in efficiency, nor have I referred to the labour turnover which is a problem to be faced sooner or later. I have made no reference to the adoption of ideas put forward by employees, which has been widely adopted elsewhere, nor to the introduction of a new worker to his job, which can alter a man's whole outlook on the industry.

My remarks have been all too brief for the purpose I had intended, but I hope I have said sufficient to show that 'Humanics in the Gas Industry' is of such importance that we must encourage that high degree of leadership to which I have already referred and create among the general body of employees that sense of loyalty, not only to the works in which they are employed, but to their own Board in particular, and to the wider field of the industry in general. Then, and only then, shall we succeed in giving to our third partner—the consumer—that high degree of service which he is entitled to expect.

Finally, gentlemen, I cannot conclude without expressing to you my deep sense of the responsibility which you have entrusted to me, and express the hope that at the end of my year of office you will not be disappointed.

LONDON AND SOUTHERN JUNIORS

Golden Jubilee Presidential Address

By J. D. C. WOODALL, B.A., M.Inst.Gas E., M.Inst.F.,
Manager, Maidstone Group, South Eastern Gas Board

IN order that we may appreciate the tremendous progress which has been made in the last 50 years, in which our Association and all its members as individuals have undoubtedly played their part, I have devoted the first part of my address to a short summary of the state of the industry at the beginning of the century.

It is apparent from a study of the technical Press of the day that in 1902 the industry was still mainly concerned with the lighting load, although great progress was being made in developing the use of gas for cooking and space heating. In a paper presented to the Institution of Gas Engineers in 1903, Professor Vivian B. Lewes, in the words of Dean Chandler in the *Gas Journal* Centenary Volume, foreshadowed and voiced the change that some engineers were thinking, but had so far not expressed. 'Candles and calories,' said Professor Lewes, 'are true types of the past and future of the great gas industry—the dead past in which candle-power was everything, the future in which calorific value and price will determine the position gas is to take in competition with other illuminants not because the calorific value must be high to yield all the illumination required, but because fuel gas offers the widest field for expansion.'

It is significant that the first paper presented to our Association, by A. V. Hendrickson in 1902, was entitled 'Some Points in the Determination of the Heating Value of Gas,' and our proceedings during the next 10 years contained a number of papers on calorimetry, and there was frequent mention of the need for a substitution of standards of calorific value for those of candle-power. As is well known, however, it was not until the passing of the Gas Regulation Act in 1920 that gas undertakings were permitted to charge for gas on a thermal basis.

Nevertheless, despite the growing use of gas for heating purposes 50 years ago, many of those engaged in the industry appear now to have been surprisingly complacent concerning the future of the lighting load. The introduction of electric lighting about 1875 certainly caused considerable alarm and produced a powerful incentive for the more energetic development of the cooking and heating loads. The Welsbach mantle, the invention of which in the 1890's had an enormous influence on the affairs of the industry, had been perfected by 1902, and gas lighting was, for a time, restored to public favour. There are many references in the *Gas Journal* and the *Gas World* of the day to contracts for gas lighting obtained in the face of electrical competition, among which was one for the lighting of Victoria Station.

The introduction of the Welsbach mantle was most timely, for its use resulted in a reduction to one quarter of the amount of gas required to produce a given amount of light. This enabled gas undertakings not only to maintain their lighting load but also made possible the development of heating and cooking loads, which otherwise might have been an embarrassment to them owing to lack of sufficient manufacturing plant.

I mention the apparent complacency regarding the lighting load on the part of gas engineers of 50 years ago, for it prompts the thought that we today may be equally overconfident concerning the retention of our cooking load. The time must surely come when generating capacity in this country catches up with the demand for electricity, and we read in the daily Press of startling developments in high-frequency electric cooking.

In 1887 Messrs. D. Parkinson took a licence for manufacturing the first prepayment gas meter, the introduction of which met with immediate and remarkable success. In the South Metropolitan Gas Company the number of slot meter consumers rose from 9,794 in 1893 to 155,829 in 1903. The rental in pennies during this period showed a no less astonishing increase—from £6,327 to £391,204.

At the beginning of the century also the practice of hiring gas cookers, which had been introduced by Magnus Ohren, of the Crystal Palace District Gas Company, in the 1870's, had been almost universally adopted. Gas appliances for cooking and for space and water heating were by now beginning to take the form in which we see them today. Ewart's, who introduced the geyser in the 1870's, produced their 'Califont' multipoint water heater in 1899, and in 1904 the first large scale Potterton installation was carried out at a High School at Clapham, at the instigation of the South Metropolitan Gas Company, and was a striking success. The need for flues for gas fires and the importance of adequate ventilation were beginning to be recognised, and in 1907 the Gas Heating Research Committee of the Institution of Gas Engineers was preparing recommendations for the satisfactory design and testing of gas fires and radiators.

In 1902 the development of the use of gas for industrial purposes was resulting in valuable new business, and there were a large number of gas engines in London. Although the invention in 1899 by Dr. Rudolph Diesel, of the oil engine named after him, meant that the gas engine had had its day, the consumption of gas in industry rose steadily until the outbreak of the 1914 war, when the urgent necessity for increased production of armaments greatly accelerated the expansion of this load.

Fifty years ago, therefore, the change in the general character of the gas industry, which had begun in 1880 as a result of the introduction of electricity, was well advanced, and the annual sales of gas in this country, which had declined slightly during the 1890's, increased from 150,000 mill. in 1902 to 200,000 mill. by 1913.

To meet these increasing demands for gas for cooking and heating purposes in 1902 all over the country new gasworks were being built and old works reconstructed and extended. There was also another important incentive for the reconstruction of gasworks.

During the latter half of the nineteenth century the appalling working conditions in retort houses led to considerable labour unrest. It had become apparent that it was urgently necessary to mechanise the operations of charging and discharging the retorts, and many attempts were made to produce satisfactory machines for the purpose. Most of the early machines were failures either because of mechanical weakness and faults in design, or because their cost did not justify the small savings which could be effected by their use. One of the more successful inventions was the stoking machine designed by John West while he was Engineer at Maidstone between the years 1869 and 1880. After leaving Maidstone, John West was appointed Engineer at Manchester, and subsequently founded West's Gas Improvement Co., Ltd.

By 1902 considerable progress had been made in the mechanisation of the retort house, and a number of practical machines were available. The well-known charging machine invented by the Belgian engineer De Brouwer was introduced into this country in 1903 and achieved immediate success. New machines of this type are still being installed, and a paper has been presented by one of our members during this session, containing a description of the latest version of the De Brouwer machine.

At the beginning of this century inclined retorts were at the height of their rather short-lived popularity, and according to Stirling Everard in his 'History of the Gas Light and Coke Company,' inclined settings were installed at Kensal Green and Nine Elms because 'in the opinion of the Company's engineers, no charging or drawing machinery for horizontal retorts was wholly satisfactory, and attention was directed to the possibilities of inclined retorts in which the force of gravity could be made to play its part.'

But a revolutionary change in gasworks practice was about to take place at the time—the introduction of the vertical retort. In 1902 Settle and Padfield patented a system of vertical carbonisation in which the coal was continuously fed into the top of the retort and the coke withdrawn at intervals by hand. Their invention was only a partial success, but in the following year the first patents for the now well-known Woodall-Duckham system of continuous vertical carbonisation were taken out. This was soon to be followed by the Glover-West, Dempster-Toogood, and Drake systems. Within 20 years the continuous vertical retort was destined to revolutionise the process of carbonisation and to make the gasworks tolerable not only for those who worked in the retort house but also for those who had to live in its vicinity.

The horizontal retort was by no means dead, however, and Mr. (later Dr.) Charles Carpenter was finding that greatly improved results could be obtained by packing the retorts full of coal instead of only partly filling them.

The introduction of the Welsbach incandescent gas mantle had made possible the production of gas of lower illuminating power, thus enabling higher carbonising temperatures to be used with a consequent increase in the yield of gas per ton of coal carbonised. Improved refractories also permitted the use of higher temperatures, and the practice of direct heating of the retorts was succeeded by various forms of gaseous firing which greatly reduced the amount of coke required to heat the settings.

Carburetted Water Gas

The manufacture of water gas as an auxiliary to coal gas was established in this country in the 1890's. In 1892 a carburetted water gas plant of 1 mill. cu. ft. per day capacity was installed at Beckton by the United Gas Improvement Company of Philadelphia. This plant employed a modification of a process which had been patented by Professor T. S. G. Lowe in America in 1875. Messrs. Humphreys & Glasgow started building similar plants in 1893, and by 1902 they were in operation in many parts of the country. The introduction of carburetted water gas thus coincided most fortunately with the urgent need of gas undertakings to increase their manufacturing capacity to meet demands for gas for cooking and heating purposes.

At the beginning of the century also far reaching changes were taking place in the methods of gas purification. Dean Chandler mentions in the *Gas Journal* Centenary Volume that in 1901 of the 998 gasworks in England and Wales, 546 used lime alone for purification, 81 used oxide only, and 371 used oxide and lime in conjunction. At that time a limit was imposed on the CS_2 content of town gas, the iniquity of which was referred to frequently at early meetings of the Association. However, in 1905 the restriction on the CS_2 content was removed, and much to their relief gas engineers were able to dispense with the use of lime for purification.

The Welsbach mantle, for which the gas industry of the day had much cause to be thankful, also contributed to the elimination of the use of lime for purification, for it was no longer necessary to remove CO_2 from the gas in order to preserve its illuminating value.

In the latter half of the nineteenth century many improvements were made to condensing and washing plant, and by 1902 the Livesey washer and the rotary washer scrubber, invented by Kirkham and Chandler, were in general use.

Many gasholders still in service today were built at this period, and the 12½ mill. cu.ft. capacity holder at East Greenwich, built in 1889, was the largest then in existence.

I hope that this brief survey will have given you some idea of the stage which had been reached in the development of the gas industry by the date of the formation of the Association. It was a period of intense activity which, to the ambitious and enthusiastic young gas engineer, offered unprecedented opportunities.

Speaking at the annual dinner of the Association in 1928, Mr. H. D. Madden, who was at the time President of the Institution of Gas Engineers, referred to the birth of our Association. He recalled that early in 1902 he, in company with three or four others, including Mr. Walter Grafton and Mr. J. M. Campbell, were walking in St. Paul's Churchyard, when they hit upon the idea of forming a Junior Gas Association in London. The Manchester Junior Gas Association, which was the first of the junior associations, had been founded four years before, and it was decided that a similar Association in London would serve a useful purpose, particularly to students taking classes in gas manufacture and supply. Accordingly Mr. Grafton, who was at the time Chemist at the Beckton works of the Gas Light and Coke Company and a teacher in gas manufacture at the Regent Street Polytechnic, wrote to the technical Press, suggesting that a Junior Association on the lines of the successful Manchester Association should be formed in London.

Inaugural Meeting

He received an encouraging response to his letter, and the inaugural meeting of the Association was held at the Polytechnic on October 27, 1902, with Mr. Grafton in the chair. According to Mr. Madden, 14 people attended this meeting, many of whom were students attending the classes in gas manufacture at the Polytechnic. The officers elected for the first Session 1902/3 were:—

President—Walter Grafton.

Vice-Presidents—J. M. Campbell, R. H. Brown.

Hon. Secretary and Treasurer—P. F. Scarth.

Members of Council—H. D. Madden, O. W. Dougen, B. H. Burroughes, W. Upton, W. J. Liberty, and W. A. Danzelman.

Honorary Auditor—W. H. Bennett.

Of the original Council, Mr. Scarth and Mr. Bennett are both hoping, at the time of writing, to attend our Jubilee Dinner. Among the founder members still living is Mr. J. G. Clark, who was Secretary from 1906 to 1909, and President in 1911-12. His son, Mr. L. J. Clark, was President in 1948-49. Another founder member, Mr. W. A. Barnett, still takes a keen interest in our affairs, and has attended a number of our visits and social functions during recent years.

The membership reached between 30 and 40 during the first session, which the founders considered highly satisfactory.

Very early in the history of the Association considerable discussion took place regarding the advisability of admitting to membership those employed by firms manufacturing gasworks plant or appliances. The Manchester Junior Association, who originally admitted contractors, altered their rules to exclude them in 1902, although they had to allow those contractors who had already joined the Association to continue their membership. Letters were exchanged between the Manchester and London Junior Associations, and there was some correspondence and comment in the technical Press on this controversial problem. Eventually the London Juniors amended their original rules in accordance with a suggestion made by the Editor in a footnote to a letter on the subject which appeared in the *Gas World* in January, 1903, and contractors were definitely excluded. The question of the membership of contractors' representatives continued to be highly contentious until, as a result of a revision of the rules of our Association in 1947, members of the technical

staffs of manufacturers of plant and apparatus for the industry were admitted to Associate Membership subject to their possessing the required technical qualifications.

This was indeed a fundamental change of policy and aroused some comment at the time, but having in mind a primary object of the Association—that of providing facilities for members to exchange ideas and views to enable them to improve and broaden their technical knowledge—the Council considered that such a step would be beneficial. The experience of the last five years has confirmed that the Council's action was wise, and we are happy to include today among our membership 33 contractors' technical representatives. We hope that their numbers will continue to increase.

A short time ago I had an opportunity of discussing the early days of the Association with Mr. J. G. Clark, and he emphasised the tremendous amount of help which was given to the Association by the Regent Street Polytechnic, on whose premises meetings were held until 1906. It is also apparent from reading the contemporary issues of the *Gas Journal* and the *Gas World* that the Association was greatly helped by the encouragement given by the technical Press. In those days of paper plenty each issue of these journals was most impressive, and full reports were contained of the meetings of the Association. In addition the editorials contained much candid and useful comment.

Youthful Diffidence

Mr. Clark tells me that right from the first the Council of the Association were disappointed that the younger members felt diffident in speaking before their seniors. This problem is frequently mentioned in the proceedings of our own and other Junior Associations over the past 40 years, and in an attempt to encourage the younger members to prepare and deliver papers, at least one 'short paper' meeting is included in our programme for each session. A President's Prize has recently been awarded for the best short paper read during the session.

Just as in recent years, there was considerable argument in the early days concerning the rules of the Association. Captain Liberty, who remained an extremely keen supporter of our Association until his death in 1950, and became the third President in 1908, was a most active member of the original Council.

There were 50 members at the time of the second annual general meeting, and the membership was 100 in 1908. By 1927, when the Silver Jubilee was celebrated, it had reached 324. It is interesting to note that during the second 25 years of its existence, the membership of the Association has almost exactly doubled, and is now 650.

In 1907 the British Junior Gas Associations' Joint Council was formed, and by 1912 there were 10 affiliated Junior Gas Associations. The first volume of the Joint Proceedings of the British Junior Gas Associations covered the session 1910-11.

In 1910 our Association's headquarters were transferred from the Cripplegate Institute to the Westminster Technical Institute, Vincent Square, where meetings were held until 1934. There is an interesting account of the first meeting to be held in the Westminster Technical Institute in the first volume of the Juniors' Transactions.

The Association continued to meet, although not so frequently as formerly, during the 1914-18 war, but it was not until 1920 that a full programme of meetings and visits was once more arranged.

In the early 1920's the British Junior Gas Associations' Joint Council gave considerable assistance to the Institution of Gas Engineers in the preparation of their Education Scheme, and in September, 1923, a special general meeting of the Association was held at the Westminster Technical Institute to hear an address on the new scheme by Mr. Walter Hole. Mr. D. Cleave Cross, the President, in introducing Mr. Hole, who was the Organising Secretary for the Education Scheme, specially mentioned the work of three members of our Association—Mr. J. G. Clark, Mr. S. B. Chandler, and Mr. E. L. Oughton. Mr. J. G. Clark had been Secretary of the Advisory Committee, which was set up by the British Junior Gas Associations to provide them with information and suggestions in connection with the preparation of the Education Scheme, and Mr. Walter Hole fully acknowledged 'the inestimable service' which the Junior Associations had done.

In the discussion which followed his address, Mr. Hole suggested that the London Juniors had an excellent opportunity of giving an admirable lead in this matter of education, and in 1926 the rules of the Association were altered to include as a qualification for membership the possession of the Institution Certificates in Gas Manufacture or Supply. Our Association took the lead in this matter and were for many years the only Junior Association to insist on these qualifications.

In 1923 the Association was affiliated to the former Southern Association of Gas Engineers and Managers, and since that date the President and Secretary have regularly attended committee and general meetings of the senior Association. There are a number of references in our proceedings since that date to the lively interest in the activities of our Association which has always been taken by the seniors, and we are grateful for the help which they have so willingly given us.

The recent alteration in the constitution and rules of the Senior Association, owing to its becoming a District Section of the Institution of Gas Engineers, has resulted in a considerable relaxation in the qualifications required for its membership, and at one time we feared that this might cause a fall in our members. Happily this has not yet proved to be the case, although the technical qualifications required for membership of our Association are higher than those required for membership of the seniors.

Lady Members Admitted

In March, 1927, the Association held its 25th anniversary celebration dinner with Mr. A. Broadbent in the chair. Among the speeches made at the dinner was one by Mrs. Newton-Booth, wife of the President in 1924, who drew attention to the fact that as a result of the amendment of the rules in the previous year it was now possible for ladies to be admitted to the Association, provided that they agreed to term themselves 'persons.' It was not until 1939, however, that a lady availed herself of this opportunity, but we now claim the distinction of being the first, and as far as is known, the only, Junior Association to admit ladies to its ranks.

During the 1927-28 session, under the Presidency of Mr. Leonard Lacey, the Association visited Watson House for the first time. Since that date members of the Watson House staff have made many contributions to our proceedings, and the Association has indeed been fortunate to have its platform chosen for the first publication of so much of the valuable work which has been carried out at Watson House and at the Fulham Research Laboratory. Also to be found in our proceedings are a number of notable papers describing much of the original research work which has been carried out during the last 50 years at the Old Kent Road Laboratories of the former South Metropolitan Gas Company.

By 1934 the Association had outgrown the accommodation at the Westminster Technical Institute, and it was decided to move to the School of Hygiene and Tropical Medicine, which remained the headquarters until 1939. I understand that today a fine new hall is being built at the Westminster Technical Institute, and it may be that before long this will become our headquarters once again.

The President, Mr. H. C. Sims, in his report at the annual general meeting in 1934, referred to the fact that the Council had had regretfully at times to refuse applications for membership of the Association owing to applicants not having passed the necessary qualifying examinations. On the other hand they felt that every encouragement should be given to these younger members of the profession, who were on the threshold of their career. This led to the introduction of Student Members who, except that they cannot vote at business meetings, enjoy all the privileges of full membership at reduced subscription.

(*Concluded on page 395*)

I cannot pass by the 1930's without mentioning Mr. F. H. G. Higton, who was Honorary Secretary from 1930 to 1938. Many are the references in our proceedings to his sterling service, and there is no doubt that he played a big part in the success of the Association during his period of office.

Throughout its history the Association has been well served by its officers. Mr. G. Winslow, the father of our present Honorary Treasurer, was also Honorary Secretary for eight years, from 1915 to 1923, and our present Honorary Secretary, Mr. Gray, is now in his seventh year of office, and has agreed, if elected, to serve for at least one more year. Altogether we have had 13 secretaries, to all of whom the Association owes eternal gratitude.

After the first world war it was some time before the Association resumed its full activities. In contrast to this the 1945-46 session, under the able Presidency of Mr. L. W. Andrew, was probably the most notable in our history. The outstanding event of the session was the convention in 1946.

There is no need for me to remind you of the outstanding events of the last few years, except to make a passing reference to the most important event of all—nationalisation. This reference is no more than passing because, despite the fears of many juniors, nationalisation has had remarkably little effect on the affairs of the associations. Colonel H. C. Smith, speaking to us in June, 1948, at which time he had already been appointed Deputy Chairman-Designate of the Gas Council, said: 'You probably wonder what is going to happen to Associations such as this in the future. I cannot prophesy, and I do not think anyone else can, but so far as I can see, there will be just as much room and need for the work of such associations in the future as there has been in the past.' Since then chairmen and deputy chairmen of gas boards all over the country have publicly expressed their recognition of the value of the work of the junior gas associations, and we are immensely grateful for their whole-hearted support, which is a great encouragement to us all.

Just as 50 years ago the gas industry was on the eve of a period of tremendous expansion and development, so may we be today. It seems that public opinion is belatedly beginning to recognise the great contribution which we can make both to the national economy and to the health and comfort of the people. Let us hope, therefore, that the London and Southern Junior Gas Association will advance confidently towards its centenary as an integral part of a flourishing and progressive gas industry.

THE HUMAN ELEMENT

By H. W. WAITON,
Howdon Gasworks, Northern Gas Board

Paper to the Northern Junior Gas Association

WITH a nationalised industry are we to see the advent of officials with the impersonal outlook of the civil servant? If this is to be the trend, then, in the author's opinion, relations with labour may deteriorate.

Those who have had experience in dealing with workmen are generally agreed that skilled and semi-skilled men give less trouble to those exercising control than unskilled men, inasmuch as they need less supervision, are generally more content, and, because of its more satisfying nature, have a greater interest in their work. The aim for the future should therefore be to eliminate as far as possible those tasks which call for brute strength and ignorance. There are many of them, particularly in the smaller works.

In medium and large works it is possible to do this, especially now that so much reconstruction is taking place, by the introduction of items like mechanical producers and mechanical handling plant, but even in large undertakings there is often reluctance to spend capital for the sake of cutting out arduous and unpleasant work. In the author's opinion there is some justification for such expenditure in spite of the fact that it may at first sight appear uneconomical. The effect of the employment of better class labour in one section of a works, besides raising the average standard, would be felt in other parts of the works by contacts and example.

The opportunities are admittedly less in the small works where it is impracticable to improve conditions and plant beyond reasonable limits, but, though it may be impossible for him to raise the average standard of skill of his workmen, the manager can, by his personal example and approach, do much to promote the growth of goodwill.

Many of the new recruits in our works do not seem to have that sense of responsibility to the public which always brought out of the older men the extra effort in difficult times. If the manager can arrest this loss by the force of his personality, his own example, and his choice of officials, he will have gone a long way towards improving the efficiency of his works without ever having drawn upon his technical resources.

Having had experience in the ranks of apprentice, tradesman, foreman, and manager of a small works, the author would like to mention a few of the ways in which the latter can, by means of observation and the personal touch, help to foster better relations between himself and each of the others to their mutual advantage.

The employment of apprentices is now practically confined to distribution, mainly because of the lack of facilities in other than large works for giving a sufficiently wide training in any one trade. When facilities do exist the high wages now required are often a deterrent. Economising in this field may prove a short sighted policy. Now that grouping of undertakings has taken place it may be found possible to provide the facilities for training apprentices from a central pool, their experience being accumulated from several works and their services eventually being shared.

The early part of a boy's apprenticeship is the impressionable time and the time when the interest of senior staff members is most required. By showing interest in a boy's progress the chief draws him out and encourages him to come for advice, thereby gaining the benefits of the experience of technicians. Older boys do not relish the idea of being errand boys and lackeys for their seniors and are sometimes indignant when required to do jobs which they consider are not going to help them to learn their trade. Such jobs are often necessary, but a few words of advice at this difficult stage may help them to see things in the right perspective while a hint to the older men also would probably smooth away some of the difficulties in this serious process of growing up.

The tendency in recent years for sales of gas to level out over summer and winter has given a fair measure of security to the present-day gas worker, but it was not always so. One need go back only 12 or 13 years to find that it was quite common for men to be informed in March or April that they would not be required again until October. The unemployment position in most northern areas was such that these unfortunates were almost invariably waiting for October to come round, and it was pathetic to see them thrown immediately into arduous work after long periods of inactivity.

(Concluded on page 397)

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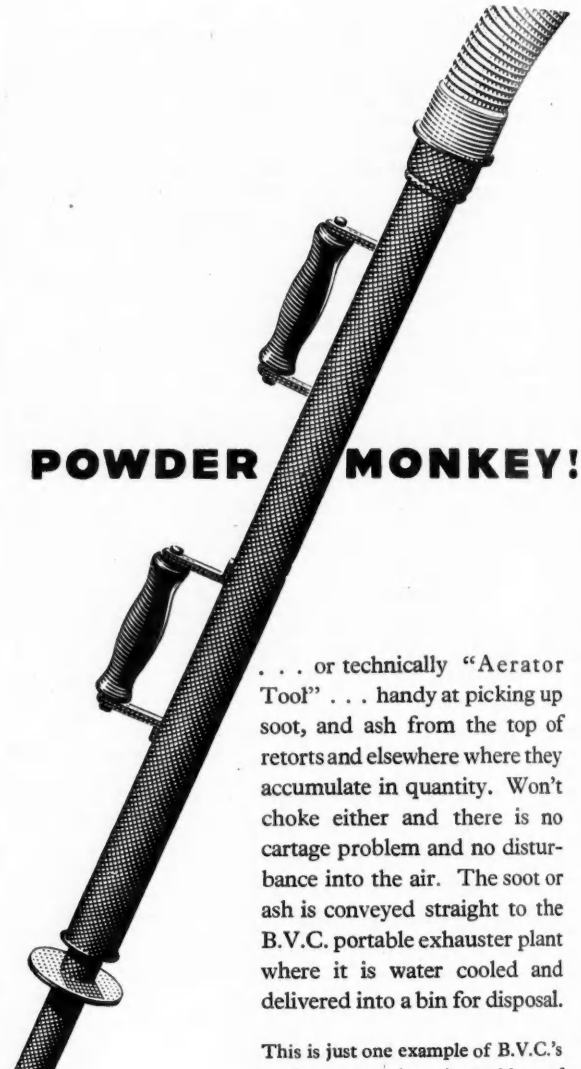

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The six shift rota was a great improvement on the bad system whereby shiftworkers had only one free day in three weeks—and that only because they worked extra shifts on two out of three week-ends—but week-end work is still unpopular when there is a general movement in industry towards the five day week.

One sometimes wonders if the older managers of pre-war vintage who had the advantage of surplus labour have changed with the times and adjusted themselves to the new outlook of the working man. Do they realise that most gasworks are not pleasant places to work in and that the days when a job at the gasworks was eagerly sought after are gone? Here, then, is a task for the works manager of the future—to make his works a better place to work in, not only by means of concrete innovations but by the introduction of 'a thread of humanistic thought.' It is essential, however, that the man in charge be familiar with local working agreements and have at least a good working knowledge of J.I.C. agreements if he is to make decisions with confidence.

The Vital Link

The foreman is a vital link in the chain of administration in any works or factory, and the gasworks is no exception. A little background may help towards a better appreciation of these men, who are often described as the N.C.O.'s of industry. In the years before the war the task of finding a foreman presented little difficulty. The candidates were many because conditions were all in their favour. The appointments were eagerly sought after because they offered security in uncertain times, with, in most cases, an upstanding wage in periods of sickness and extra holidays. The choice usually fell upon a tradesman with a sound knowledge of the works, and a good many years of service, and the chosen one just as usually followed the familiar pattern and became a bowler-hatted martinet.

During the war it became difficult to find good types who would become foremen, because the job had now little to recommend it. The acute labour shortage had weakened the foreman's armoury and left him with greatly diminished authority. Security was no longer a prime consideration when people were living from day to day, and few men were willing to accept responsibility knowing the difficulties they would encounter. The upstanding wage had lost its attraction now that it was often possible, with overtime, to earn more as a workman. As the war dragged on and deteriorating plant was put under more and more strain, the extra time which foremen were obliged to spend at work was greatly increased. If the outstanding qualification needed for success as a pre-war foreman was firmness, he was now obliged to acquire the qualities of tact, patience, and persuasiveness, courage with restraint, and above all a thick skin. Happily the foreman's lot has improved in the past few years and today many of the deterrents to the acceptance of promotion by reliable men no longer exist, though the qualities required remain substantially the same. The big stick is laid aside and, generally speaking, where the autocratic inclinations have been mellowed by diplomacy, the result is a good foreman. His influence over the labour force is considerable and his co-operation is far more valuable to the manager than his obedience only, for his enthusiasm can bring out of men that little extra which makes all the difference between good and good enough.

Like all officials, at whatever level, he does not enjoy being bypassed and especially is it unfair to make of him a bearer of nothing but bad news and unpopular orders while the pleasant tidings are communicated direct from the office. In order to gain the confidence needed to hold his grip the foreman needs, and indeed expects, the confidence of his chief. Retort house foremen in particular are too often saddled with small jobs which take them away from their men. Their absence provides the workman with opportunities for slackness and the foreman with an alibi. On the other hand, it is sometimes most difficult to prevent a newly appointed retort house foreman from working on the bench himself to get results. If he persists in this his authority is undermined from the outset.

DISCUSSION

Mr. J. E. McManus (President, Northern Junior Gas Association) said that employment of apprentices on the works side, as distinct from distribution, was always beset with difficulties. Even when the larger works possessed the necessary facilities for training it was almost invariably found that other industries in the surrounding area provided better training and facilities than the gasworks could offer. In these difficult days of obtaining suitable operatives for retort house and similar shift work, he would suggest that more youths of the labourer type be employed and trained in all the various operational duties. His experience had shown that such youths, properly trained, frequently provided the key men in the works. Unfortunately, during the past war such trainees disappeared from the works.

In developing the good relationship between men and manager, he strongly supported the sympathetic approach. Slackness in the enforcement of obligations under working agreements could very soon lead to very difficult situations, and sometimes could not be easily discovered. A foreman could soon gain popularity by overlooking some of these regulations, with resultant financial gain to the workmen concerned. Eradication of such faults often proved a painful business for both men and management.

The author was inclined to the opinion that the foreman's lot had improved. This might be true as far as shift foremen were concerned, or those foremen who seldom worked more than the regulation weekly hours. But with foremen tradesmen who were subject to 'call-out' on breakdowns this was not so. The ordinary workman was now adequately covered for sickness, and was more or less on an upstanding basis for a period of 13 weeks. The advantage of an upstanding wage for twice this period had not now its old attraction. Shortage of craftsmen, especially in engineering districts, had led to regular overtime being worked, and this usually counteracted the differential in wages between the tradesman and his foreman, the latter only qualifying for payment for overtime when this became exceptional. He had frequently been told by those offered promotion that their only gain would be the responsibility of the job.

Disciplinary action on the part of a foreman should generally have the full support of the manager. Should a workman consider the action of a foreman toward him to be unjust or too severe he should have the right of appeal to the works manager. This could prevent victimisation, and where rightly handled could develop a reputation for strict fair play on the part of the manager.

Mr. H. Waiton, in reply, agreed with Mr. McManus that from the financial viewpoint foremen were still at a disadvantage. He was thinking more of the regained status of the office and the returned dignity as compared with the war years. He was in agreement, with the President's remarks on disciplinary action by foremen and the workman's right of appeal, with one qualification. The foreman might have taken drastic action because of previous misbehaviour of the workman, and the man's record rather than the incident should be the subject of an enquiry. The right of appeal, said Mr. Waiton, did not lead to a procession of men to the manager as might at first seem likely.

STRUCTURAL STEEL DESIGN

BROCHURE No. 4 issued by the British Constructional Steelwork Association (Artillery House, Westminster) gives further examples of structural steel design to conform with the requirements of B.S. 449: 1948. For the stability of a structure depends on providing bases to stanchions which will adequately resist the overturning moments in addition to the vertical and horizontal forces. In this publication the author, V. H. Lawton, M.I.STRUCT.E., submits suggestions for the practical design of the steel bases. Three examples are given—two stanchions each with single rolled steel joists and one stanchion with two channels battened.

The publication also includes an example of the design of a single angle rafter for a roof truss.

All clause references relate to the B.S. 449:1948, including Amendment No. 1, July, 1949. Steel is to comply with the requirements of B.S. 15:1948.